

**NEW BEDFORD HARBOR TRUSTEE COUNCIL  
ENVIRONMENTAL ASSESSMENT**

**ROUND II - RESTORATION IDEAS**

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## Acronyms Used

AWQC	Ambient Water Quality Criteria
ACOE	U.S. Army Corps of Engineers
CBC	Community Boating Center
CDF	Confined Disposal Facility
CERCLA	Comprehensive Environmental Response, Compensation and
Liability Act	
DNRT	Dartmouth Natural Resource Trust
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
MDPH	Massachusetts Department of Public Health
MGL	Massachusetts General Laws
NBHTC	New Bedford Harbor Trustee Council
NEPA	National Environmental Policy Act
NHESP	Natural heritage and Endangered Species Program
NPDES	National Pollutant Discharge Elimination System
PCB	Polychlorinated biphenyl
ppm	parts per million
RP	Restoration Plan
RP/EIS	restoration Plan/Environmental Impact Statement
WWTP	Wastewater Treatment Plant



## 1: PURPOSE AND NEED FOR ACTION

### 1.1 The Proposed Action: Environmental Restoration of the New Bedford Harbor Environment

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund," 42 U.S.C. ' 9601 *et seq.*) provides a mechanism for addressing the Nation's hazardous waste sites, allowing states and the Federal Government to sue polluters to recover the costs of the clean-up and/or restoration of designated sites. CERCLA provides for the designation of natural resource trustees: Federal, state, or tribal authorities who represent the public interest in natural resources. Natural resource trustees may seek monetary damages (*i.e.*, compensation) from polluters for injury, destruction, or loss of natural resources resulting from releases of hazardous substances. These damages, which are distinct from clean-up costs, must be used by the trustees to restore, replace, or acquire the equivalent of the natural resources that have been injured. The Trustees can prepare a restoration plan and are required to involve the public in the development of the restoration plan (42 U.S.C. ' 9607(f)(1) and ' 9611(l); 40 C.F.R. ' 300.600; 43 C.F.R. ' 11.93).

The sediments, water column and biota of New Bedford Harbor, Massachusetts, are highly contaminated with polychlorinated biphenyls (PCBs) as a result of industrial discharges into the Harbor and nearby coastal environments in western Buzzards Bay. As a result, the U.S. Environmental Protection Agency (EPA) designated New Bedford Harbor a Superfund Site under CERCLA in 1983. In 1991 the New Bedford Harbor Trustee Council (NBHTC or Trustee Council) was formed, composed of the Commonwealth of Massachusetts, the U.S. Department of Commerce, and the U.S. Department of Interior.

In order to satisfy the requirements of the National Environmental Policy Act (NEPA, 42 U.S.C. ' 4321 *et seq.*), the Trustee Council combined restoration planning with the development of an Environmental Impact Statement (EIS) and prepared a Restoration Plan and EIS (RP/EIS) for the New Bedford Harbor Environment, under CERCLA, 42 U.S.C. ' 9601 *et seq.*, and NEPA, 42 U.S.C. ' 4321 *et seq.* A Record of Decision was issued on September 22, 1998 (NBHTC 1998b).

The Trustee Council has undertaken and is undertaking environmental restoration in New Bedford Harbor and the surrounding environment in order to: (1) restore natural resources injured by PCB releases; (2) restore the habitats of living resources and the ecological services that the resources provide; (3) restore human uses of natural

resources, such as fisheries and public access; and (4) improve aspects of the human environment of New Bedford Harbor that have been degraded by the Harbor contamination (NBHTC, 1993).

The environmental restoration has incorporated public and professional opinion to develop, evaluate, and select specific and general restoration alternatives. The result has been the selection and implementation of the preferred alternatives identified in the RP/EIS. As proposed by the RP/EIS, the Trustee Council initiated a second solicitation of restoration ideas which are included as alternatives in this Environmental Assessment. The RP/EIS identified appropriate times for when the Trustee Council could consider selecting additional projects for implementation. This Environmental Assessment describes the process being used by the Trustee Council in making its initial recommendations regarding the restoration ideas to be implemented to address the injury to natural resources.

## **1.2 Need for the Proposed Action: Injury to Natural Resources**

### **1.2.1 Site History: Contamination of New Bedford Harbor**

New Bedford Harbor is an urban tidal estuary on Buzzards Bay, in southeastern Massachusetts. From the late 1940s until 1977, when the use of PCBs was banned in the United States, manufacturers of electrical parts in New Bedford discharged PCBs directly and indirectly, via the municipal wastewater treatment system, into the New Bedford Harbor Estuary. PCBs are a class of chlorinated organic compounds that are suspected human carcinogens. They have been shown to be harmful to many species, capable of causing reproductive failure, birth defects, and death. PCBs tend to biomagnify up the food chain, accumulating in the tissues of top predators such as gamefish, birds, and humans (60 F.R. 10836).

A series of studies conducted from 1974-1982 found high levels of PCBs and toxic metals (particularly cadmium, chromium, copper and lead) to be widespread in the water, sediments, and marine life of New Bedford Harbor. Levels of PCBs in the Harbor biota were found to exceed what was then the U.S. Food and Drug Administration (FDA) guideline of 5 parts per million (ppm) (subsequently lowered to 2 ppm). As a result, the Commonwealth closed the Inner Harbor to all fishing, and the Outer Harbor to the taking of certain species in September, 1979.

In the late 1980s and early 1990s, studies further described the distribution of PCBs and toxic metals throughout the New Bedford Harbor Estuary and in parts of Buzzards Bay (Pruell et al., 1990). PCB concentrations in marine sediment in the Estuary were found to range from a few parts per million to over 200,000 ppm, while concentrations in excess of 50 ppm were found in parts of Outer New Bedford Harbor. PCB concentrations in the water column were found to exceed federal ambient water quality

criteria (AWQC) (0.030 ppm, based on chronic impacts to marine organisms) (60 F.R. 10836).

In 1983, New Bedford Harbor was designated a Superfund Site, eligible for Federal clean-up action, or Remediation.® In addition, Massachusetts has identified New Bedford Harbor as the Commonwealth's priority Superfund site. As a result of settlements in 1991 and 1992 with the Federal Government and the Commonwealth of Massachusetts, the manufacturers responsible for the contamination paid approximately \$100 million for remediation and restoration of New Bedford Harbor, of which approximately \$21 million plus accrued interest must be used by the Trustee Council for restoration, replacement or acquisition of natural resources.

### **1.2.2 Injury to Natural Resources: Overview**

Discharges of PCBs to the New Bedford Harbor Environment have caused significant ecological injury. Widespread contamination of the air, water, sediments and biota of the New Bedford Harbor Estuary has resulted in lethal effects for some species as well as widespread sub-lethal effects such as reduced biological diversity, alteration of biotic communities, and reproductive impairment of marine species.

Contamination of New Bedford Harbor natural resources by PCBs has resulted in the closure of fishing grounds, lost use of beaches, and loss of environmental quality.

The Superfund Site remediation of New Bedford Harbor will remove 85% to 90% of the PCB contamination from New Bedford Harbor. It will not, however, restore the New Bedford Harbor Environment to its pre-contamination condition. Lower, but still significant, levels of PCBs and metals will remain in the marine sediments of some Harbor areas. Confined disposal facilities (CDF) will occupy significant areas of shoreline along New Bedford Harbor.

Also present is contamination from other sources such as combined sewage overflows, wastewater treatment plant discharges, industrial wastewater discharges, and boats. The Superfund designation of this site was based primarily on the PCB releases from industrial discharges at two locations and not on these other sources of environmental contamination.

### **1.3 Purpose of the Proposed Action: Restore Injured Natural Resources and Lost Services of the Natural Resources**

The purpose of the proposed action--natural resource restoration in New Bedford Harbor--is to restore, replace or acquire the equivalent of natural resources injured by PCB releases in New Bedford Harbor, as required by CERCLA (42 USC ' 9607(f)(1)). Restoration actions would thereby accelerate and enhance recovery of the ecosystem, the ecological services provided by the ecosystem, and associated human uses.

In order to assess the potential environmental impacts of the restoration, the Trustee Council considers the affected environment to include the lands of the Acushnet River watershed, the waters of the Acushnet River and New Bedford Harbor, and parts of Buzzards Bay, as well as uses of this environment -- ecological as well as human -- extending beyond these boundaries. However, since the injury primarily affected marine and coastal resources, the proposed restoration focuses on the resources of the New Bedford Harbor Estuary and adjacent coastal areas.

#### **1.4. Coordination of Restoration with Remediation**

Restoration of the New Bedford Harbor environment has been and will continue to be coordinated with the process of remediation, since the restoration options available at a particular time would be largely dependent on the status of the Harbor environment and clean-up. Water and sediment quality, ongoing dredging and construction activities, and the location and extent of CDFs will influence the possibilities for restoration. The Trustee Council, therefore, envisions a flexible restoration planning process, based on a combination of near-term and future restoration actions. The process would make use, over a number of years, of a series of public solicitations for restoration ideas. Since EPA's remedial action is expected to take approximately 10 additional years, the Trustee Council anticipates a restoration process of similar duration.

## **2. Alternatives and Their Impacts**

This section analyzes environmental impacts of the proposed action: environmental restoration of New Bedford Harbor. This section identifies restoration alternatives under consideration and evaluates their environmental consequences. Restoration priorities were established through a public process of communication among the Trustee Council agencies, other public officials, members of the public, and other stakeholders. (RP/EIS Chapter 2) The alternatives that follow were derived from a public, formal solicitation of restoration ideas (Federal Register).

### **2.1. No-Action Alternative: No Environmental Restoration**



No-action/natural recovery (with monitoring) must always be considered in environmental analysis, and should be chosen when it provides greater environmental benefits than other alternatives.

For purposes of this analysis, the no-action alternative assumes that the Harbor cleanup described in Chapters 2 and 3 of the RP/EIS will be completed in approximately 10 years; that it will reduce the level of contaminants in the Harbor Environment; that previous Trustee Council funded projects will be implemented and that EPA initiated natural resource restoration activities resulting from cleanup activities will be undertaken during or after cleanup.

### **2.1.1 Current Status of the Harbor Environment**

The release of PCBs, heavy metals and other contaminants into the New Bedford Harbor Environment has caused injury to natural resources and lost use of those resources. Sewage, household wastes, commercial wastes such as debris, oil, metals and organics all contributed to a degraded environment.

The discovery that PCBs and other contaminants had been released into the Harbor since the 1940s caused New Bedford Harbor to be added to the National Priorities List, by EPA in 1983. Marine sediments, beaches, the water column, and biota were contaminated with PCBs, and this has in turn, affected the area's natural resources and ecosystems. PCBs have been shown to harm reproduction and can cause cancers in marine species.

The impacts from PCB contamination are not limited to natural resources alone. The services provided by the natural resources in the affected area has been impacted as well. The contamination resulted in the prohibition of fishing in large portions of the Harbor Environment and other activities provided by the natural resources became infeasible or undesirable. The Massachusetts Department of Public Health (MDPH) posted warning signs along the Harbor prohibiting swimming, fishing, shellfishing and lobstering.

### **2.1.2 Predicted Scenario under Natural Recovery Only**

Natural recovery is often slow and may not restore resources, habitats, or associated services to baseline condition. PCBs were designed to remain stable in industrial applications. They are chemically stable (will not easily degrade into other compounds), are able to withstand high temperatures, have low solubility in water, and are non-flammable. These characteristics also mean that they will remain in the environment for a long time and will bioaccumulate in the tissues of living resources. (Weaver, 1982) Other contaminant sources such as heavy metals and sewage may also adversely affect recovery times within the Harbor Environment.

The damage assessment conducted on the New Bedford Harbor Environment assumed a natural recovery period of 100 years without remediation. This is a likely scenario given the stability of PCBs and environmental processes taking place. As described in RP/EIS Section 3.5.1.2, EPA has informally estimated that once the cleanup is completed, water quality target levels for PCBs may take another 10 years to achieve (Dickerson, PC, 1996). The Harbor cleanup will reduce the concentration and volume of PCBs, but residual PCBs will continue to remain and affect natural resources for an additional 16-100 years.

## **2.2. The Preferred Alternative: Natural Resource Restoration**

Funds to restore injured natural resources are available from settlements with the parties responsible for releasing contaminants into New Bedford Harbor Environment. The Trustee Council has the legal responsibility to use this money to correct, to the greatest extent possible, the natural resource injury that has occurred.

Natural resource restoration will accelerate the natural recovery process and, in turn, should lead to additional economic benefits through increased use and greater confidence in the health of the Harbor. The sooner injuries can be corrected through cleanup efforts and natural resource restoration, the sooner natural resources can thrive in a healthy environment. Such an environment will support larger populations of marine organisms, healthier individuals and a greater diversity of species. This will also lead to increasing the services provided by the natural resources through, *inter alia*, fishing, shoreline use and boating.

Due to time constraints and settlement of the litigation, the damage assessment performed was incomplete and was a generalized approach towards determining the impacts of the contamination on natural resources. It remains for the Trustee Council to determine the best approach for restoration. Other environmental impacts are present in the area which may mask or increase the impacts of PCB contamination. Historical information does not describe the quality to which resources should be restored. Accordingly, the preferred approach is to take a holistic view and address natural resource opportunities throughout the affected environment. This will provide ecological benefits throughout the watershed while having additional positive effects on the human environment.

Projects will be selected to address the restoration priorities (RP/EIS Section 2.2.6) and by applying the selection criteria (RP/EIS Section 2.2.5). The restoration priorities have equal weight under this approach, which promotes a broad perspective for the restoration actions. Projects may be distributed throughout the affected environment or the supporting environment if that environment contains affected natural resources.

### **2.3. Specific proposals/alternatives**

Following the process described in RP/EIS Section 2.2.7.5, the Trustee Council solicited natural resource restoration ideas from the public for near-term restoration projects.

The Council issued an initial *Request for Restoration Ideas* in October 1995 (60 FR 52164, October 5, 1995)(Round I). Fifty-six ideas were received from the local communities, members of the public, academia and state and federal agencies. The ideas were the basis for the alternatives listed in the Council's RP/EIS that was developed to guide the Council's restoration efforts. A record of decision was issued on September 22, 1998 for the RP/EIS. The record of decision provided for implementation of 11 preferred restoration projects through funding provided by the Trust Account.

A second request for proposed restoration ideas was issued in August 1999 (64 FR 44505, August 16, 1999) (Round II). Thirty-five restoration ideas were submitted to the Council with total requested funding of approximately \$35.0 million from the Trust Account. The Council held a meeting on October 26, 1999 to provide an opportunity for oral presentations of the submitted ideas. The Council also solicited public comments on the ideas and held a hearing on November 23, 1999 to give the public further opportunity to comment on the ideas. The project ideas were reviewed by the Council's legal advisors who provided comments regarding whether or not particular ideas satisfied the legal criteria for funding. In addition the ideas were evaluated by technical advisors who developed recommendations with respect to the technical feasibility and restoration benefits of each of the ideas.

The Council carefully considered all public comment received and the comments from its technical and legal advisors and staff. The Council discussed each idea, and following this review process, the Council identified preferred project ideas for potential funding.

This section identifies the Round II restoration ideas received and the preferred alternatives resulting from the Council's review process and consideration of public comment.

#### **2.3.1 Marshes or Wetlands**

Marshes and wetlands provide important habitat for many of the injured fish and wildlife resources within the Harbor Environment. Besides having habitat value, marshes and

wetlands provide important functions which protect or enhance the Harbor Environment. Wetlands also cleanse polluted waters, protect shorelines, and recharge groundwater aquifers (Mitsch and Gosselink, 1993). During flood conditions, wetlands provide protection by holding excess water that would otherwise flood surrounding areas.

Tidal salt marshes which provide the functions listed above, as well as habitat essential to fish and shellfish affected by PCB contamination are found within the Harbor Environment.

#### **2.3.1.1 No-action Alternative: No Marsh or Wetland Restoration, or Creation**

The no-action alternative would be to leave existing marshes or wetlands in their present state and not restore, or any new marshes or wetlands. The New Bedford Harbor Environment contains several marshes or wetlands, some of which function properly. Others are contaminated or are otherwise less than fully functional.

Marshes on the eastern side of the Harbor north of Coggeshall Street have high levels of PCB contamination. Species are exposed to PCBs each time they use the marsh, resulting in detrimental health effects. Allowing these marshes to continue in this condition will allow future generations to be exposed and suffer chronic PCB effects. EPA's Record of Decision for the Upper and Lower Operable Unit (EPA ROD) (EPA 1998) specifies that in saltmarshes sediments with PCB contamination levels above 50 ppm will be removed. Portions of the marsh will still contain levels higher than those protective of natural resources. The 50 ppm level was decided upon to spare large portions of the marsh from being removed or destroyed. After removal for the cleanup, EPA will restore the affected marsh areas.

Other marshes within the area have undergone transition due to inadequate tidal exchange. In some cases this has allowed invasive brackish-water plants such as the common reed (*Phragmites australis*) to take over portions of the marsh. When established, this plant provides little habitat value to wildlife. In other cases, inadequate tidal flow has led to hypersaline conditions resulting in a vegetation die-off. Such conditions will no longer support many of the species commonly found in salt marshes.

Marshes or wetlands are critically important within the Harbor Environment. Since certain marshes within the Harbor will still have PCB contamination even after cleanup, it is important to restore or enhance other marshes within the Harbor Environment. Failure to restore these resources will allow the habitat value of the Harbor Environment to continue to deteriorate. For these reasons, the no action alternative is rejected.

### **2.3.1.2 Preferred Alternatives**

The preferred alternative is active restoration of the marshes and wetlands within the Harbor Environment. The Trustee Council will seek opportunities to restore injured or poorly functioning marshes or wetlands within the Harbor Environment. Once identified, the Trustee Council will prioritize the wetland restoration opportunities so that wetlands within the Harbor Environment that support natural resources such as fish, shellfish and avian species will be favored. Wetlands that can be enhanced to replace PCB contaminated wetlands will be favored for current restoration activities.

#### **2.3.1.2.1 Marsh Island Salt Marsh Restoration**

##### **Project Description**

Proposed Action: This idea would restore a salt marsh at Marsh Island (known locally as Tin Can Island) in Fairhaven. The proposed project would re-establish between 8 and 12 acres of salt marsh through the restoration of former tidal wetlands that were filled by the disposal of dredge materials during the 1950s, re-establish an upland maritime plant community, and create a passive recreation park for public access to the harbor. The idea would involve the excavation and removal of dredge material, site regrading, and planting of smooth cordgrass and other tidal wetland plant species. Hiking trails, a bikeway, and/or boardwalk would provide an access along the harbor shoreline, and bedrock outcrop along the western and northwest shoreline would make an excellent focal point for the park with the restored salt marsh and tidal gut immediately south of this outcrop.

Location: Fairhaven Inner Harbor

Timeframe: Short-term, probably not affected by cleanup.

Affected resources addressed: Salt marsh and the natural resources supported by salt marsh, including plants, mammals, birds, fish, and shellfish, that have been negatively affected by the PCB contamination of the New Bedford Harbor Environment.

Nexus to PCB Injury: Marshes on the eastern side of the Harbor north of Coggeshall Street have high levels of PCB contamination. Marine and estuarine fauna are exposed to PCBs each time they use these marshes resulting in detrimental health effects. EPA's ROD (EPA 1998) specifies dredging of salt marsh where PCB levels exceed 50 ppm. It will be a number of years before these areas will be dredged and restored, and even then some salt marsh will remain relatively contaminated (0-50 ppm). Restoration of marsh habitat that is in the vicinity of New Bedford Harbor but is not impacted by contaminants will help support fish, shellfish and other faunal species

dependent on marshes that have been injured within the New Bedford Harbor Environment.

Benefits to Resource: Marshes and wetlands provide important habitat for many of the injured fish and wildlife resources within the Harbor Environment. Besides this habitat value, marshes and wetlands act to cleanse polluted waters, protect shorelines and provide flood protection by holding additional water. Restoration of marsh habitat that has not been impacted by contaminants will help support natural resources dependent on marshes.

Benefits to Community: Public access, education and outreach opportunities would be available and encouraged. The community at large will benefit from this restoration because of the increased productivity of the marsh and the increase in ecological functions that the salt marsh serves to the New Bedford Harbor Environment, including nutrient export, nursery habitat for fish, habitat for shellfish and crustaceans, and habitat for wildlife.

### **Technical Feasibility**

Achievability: There was salt marsh once present on-site, based on published historic maps of the harbor. Dredge materials were deposited on the site during the 1950s that resulted in the loss of most of the salt marsh on the 20+-acre land area. It is technically feasible to restore the marsh habitat at this location, and re-establish the ecological functions and values of such habitat. Before any construction would commence, a feasibility study and engineering design would be completed to determine the amount of wetlands that could be restored, the methods needed to achieve the work, and a construction schedule and cost estimate for completing the work.

Reliability of Techniques: Standard marsh construction techniques would be used including removal of dredge material fill, regrading, and planting with native salt marsh species.

Impact of Remediation: While the project is not anticipated to be affected by the cleanup activities, the Trustee Council will coordinate with the EPA and ACOE to ensure that there is no conflict between the restoration and cleanup activities. The Trustee Council expects to convene a meeting of all interested parties to discuss the goals, timing and implementation of restoration at the site.

Monitoring: Monitoring would be conducted in conjunction with other wetland restoration projects through an educational institution or private contractor.

Estimated Cost: \$750,000-\$1,250,000

Estimated Match: None specified.

## **Impacts on the Environment**

Biological: The biological environment would be enhanced by this action by creating a more diverse and functional habitat than that which is currently available at this location.

Impacts on injured resources: This project will take place within the New Bedford Harbor Environment as defined by the Trustees. The proposed activity will provide habitat for fish, shellfish, and bird species injured by the releases of contaminants. No adverse effect on the injured resources is expected.

### Impacts on other resources/habitats:

Vegetation: The project would create salt marsh habitat by replacing a portion of the upland plant community consisting of herbs, shrubs and scattered trees. The salt marsh habitat will provide a more functional habitat for the marine and estuarine species inhabiting the harbor.

Wildlife: The construction of salt marsh habitat in this area is expected to benefit wildlife species. With habitat enhancement, wildlife species may actually begin to inhabit greater portions of the site for feeding and shelter.

Fish and shellfish: The project is designed to benefit fish and shellfish. Efforts will be made to minimize disturbance of shellfish beds during construction.

Endangered species: No designated endangered species are known to use the site, nor are expected to be affected by the project.

Physical: Short-term impacts will result from the project as the coarse-grained dredge material present on the site is removed and soil is regraded. Grading of the site would be required to create a stable environment and minimize potential erosion.

Human: There are expected to be some short-term impacts due to construction activities. Access to the site is limited and the best means of bringing in equipment and materials with the least impact will have to be evaluated. Efforts will be made to reduce the impacts on the surrounding neighborhood and cemetery. Once completed, foot trails could be developed to provide direct access to the harbor. Public education and outreach opportunities would be afforded by providing access to the restored wetland and remainder of the site.

Preliminary Determination: The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The

Council favored direct restoration at this site rather than the proposed planning effort. (See 2.3.7.2.3.) If the project is ultimately chosen after consideration of the public comment, the Council will work with the various interested parties to determine whether this is the best use for the site and the best approach for implementing habitat restoration actions.

**Preliminary Funding** : \$750,000

#### **2.3.1.2.2. Nonquitt Salt Marsh Restoration (from Round I)**

##### **Project Description**

Proposed Action: For more than 125 years, the 60+-acre Nonquitt salt marsh has been adversely affected by reduced tidal exchange with Buzzards Bay. Tidal exchange to the Nonquitt marsh will be significantly improved by the installation and maintenance of a larger flow conduit and removal of an existing undersized culvert, tidal gate, and concrete headwall. Modification of or amendments to the waterlogged, subsided peat substrate may be required to increase the potential for restoring the low marsh plant community. Also included in this proposal is the creation of public access to the marsh through expansion of the trail system at the "Smith Farm" owned by the Dartmouth Natural Resources Trust, and the construction of a marsh observation platform.

Location : Town of Dartmouth, in the Nonquitt section, adjacent to Mattarest Lane.

Timeframe: Short-term, not affected by cleanup. The actual construction of the project is expected to require 1 to 4 weeks to complete. Planning, modeling, engineering design and regulatory permit authorizations are expected to require approximately 8 to 12 months.

Affected Resources Addressed: Salt marsh habitat and the natural resources supported by salt marsh including plants, mammals, birds, fish, and shellfish that have been negatively affected by the PCB contamination in the New Bedford Harbor Environment.

##### **Rationale for Adoption**

Nexus to PCB Injury: Marshes on the eastern side of the Harbor north of Coggeshall Street have high levels of PCB contamination. Marine and estuarine fauna are exposed to PCBs each time they use the marsh resulting in detrimental health effects. EPA's ROD (EPA 1998) specifies dredging of salt marsh where PCB levels exceed 50 ppm. It will be a number of years before these areas will be dredged and restored, and even then some salt marsh will remain relatively contaminated (0-50 ppm). Restoration of marsh habitat that is in the vicinity of New Bedford Harbor but is not impacted by



contaminants will help support fish, shellfish and other faunal species dependent on marshes that have been injured within the New Bedford Harbor Environment.

Benefits to Resources: Marshes and wetlands provide important habitat for many of the injured fish and wildlife resources within the Harbor Environment. Besides this habitat value, marshes and wetlands act to cleanse polluted waters, protect shorelines and provide flood protection by holding additional water. Creation of marsh habitat that has not been impacted by contaminants will help support natural resources dependent on marshes.

The Nonquitt Salt Marsh has been compromised by human activities. Specifically, the undersized culvert has reduced tidal flushing resulting in a permanently flooded and waterlogged marsh peat substrate. Approximately 60 % of the vegetation in the marsh had died-back by the late 1970s, and the salt marsh community has never recovered. The unvegetated peat is slowly decomposing and eroding, lowering the elevation of the marsh below that which will support salt marsh. Additionally, portions of the perimeter of the marsh has been invaded by common reed (*Phragmites australis*), an invasive plant species with limited ecological functions. By improving the tidal flushing of this marsh, normal salinity, vegetation, and productivity of the salt marsh can be restored. This will benefit the marsh as well as the overall New Bedford Harbor Environment.

Benefits to Community: The community at large will benefit from this restoration because of the increased productivity of the marsh and the increase in ecological functions that the salt marsh serves to the New Bedford Harbor Environment, including nutrient export, nursery habitat for fish, habitat for shellfish and crustaceans, and habitat for wildlife. Further, the marsh is adjacent to open fishing and shellfishing grounds and serves as a recreational and educational resource. The DNRT plans to expand the parking and trail system on the newly acquired "Smith Farm", which abuts the marsh to the west. The trails will provide for public viewing of the marsh, the natural resources present in the marsh, and will lead to a newly constructed viewing platform for overlooking the marsh. To the east, a beach is accessible by boat only.

### **Technical Feasibility:**

Achievability : Due to the waterlogging and subsidence of the peat substrate, some areas of the marsh may not recolonize with salt marsh vegetation. Also, it is unlikely that tidal flushing can be re-established fully to its original condition. However, an improvement in tidal flushing will clearly benefit the ecological functioning of the marsh. Culvert replacement/enlargement is a commonly used method, and the potential for project failure is low.

Reliability of Techniques: Standard culvert replacement construction and substrate improvement techniques would be used. The inadequately sized culvert and pipe would be removed and replaced with a larger flow conduit. The tidal entrance to

Buzzards Bay would be designed to minimize clogging and sediment filling. The surrounding area would be regraded to ensure the tidal flow remains open and fully functioning.

Impact of Remediation: This site would not be affected by the remediation activities.

Monitoring: Post-construction monitoring would be conducted in conjunction with other wetland restoration projects through a private contractor or educational institution.

Estimated Cost: \$150,000

Estimated Match: None specified.

### **Impacts on the Environment**

Biological: The biological environment would be enhanced by this action by creating a more diverse and functional habitat than that which is currently available at this location.

Impacts on injured resources. This project will take place within the New Bedford Harbor Environment as defined by the Trustees. The proposed activity will provide habitat for fish, shellfish, and bird species injured by the releases of contaminants. No adverse effect on the injured resources is expected.

Impacts on other resources/habitats.

Vegetation: The restoration of tidal flushing in the Nonquitt Marsh should be beneficial to the native vegetation. Reduced flushing has caused a die-back of vegetation, primarily smooth cordgrass (*Spartina alterniflora*) at least since the late 1970s, and the vegetation has never recovered. Restoration of a more natural hydrologic regime is expected to promote redevelopment of vegetation in what has become a shallow water impoundment with low ecological functioning.

Wildlife: Restoration of a more natural hydrologic regime is expected to enhance the overall productivity of the marsh. Vegetative development will provide cover for wildlife and substrate for invertebrates. However, some species, particularly shorebirds, that utilize the existing mudflat in the marsh may lose some habitat. Other wildlife species that utilize the vegetation will benefit from the change.

Fish and shellfish: The project is expected to create and enhance habitat for these resources by returning the site to a more natural tidal regime, and allowing access by fish and shellfish from Buzzards Bay.

Endangered Species: No designated species are known or expected to be using the project action area.

Physical: Direct physical impacts to the environment should be limited primarily to the immediate area surrounding the marsh outlet, culvert, and headwall. Minor peat substrate modifications may be implemented to help in re-establishing a salt marsh plant community on the subsided substrate. Wetland functions, water quality, and tidal flow are all expected to improve due to this project. No impacts on cultural resources (archaeological or historical) or on land use patterns are expected.

Human: There will be a temporary impact to the human environment, predominantly to the Nonquitt Community, during construction. Inconveniences, such as noise and large equipment blocking the road, should be expected. Also, a small stretch of beach immediately adjacent to the existing outlet will be unusable during construction. However, once the project is constructed, productivity of this marsh will be enhanced. Also, accessibility to the marsh for the general public will be significantly improved through the construction of trails and a viewing platform on DNRT land. Requests have been made to open up access from the eastern side of the marsh. Public access is available by boat. A private road is accessible to Nonquitt residents.

Preliminary Determination: The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. During Round I the Council decided to postpone the final decision regarding funding of this project pending further evaluation of comments received regarding: the costs of the project and the potential for cost sharing; whether other design and location alternatives are under consideration; the possible impacts to the marsh from fecal contamination and freshwater inputs; and the desire for public access to the marsh. The Council has evaluated those comments and the responses received from the applicant and determined that the project is cost effective; is in an appropriate location; and provides sufficient public access. In short, the project meets the criteria for funding and will provide substantial increased benefits to injured natural resources within the New Bedford Harbor Environment.

Preliminary Funding: \$150,000

### **2.3.1.2.3. New Bedford Aquarium - (Salt Marsh Construction)**

#### **Project Description**

Proposed Action : To construct a salt marsh on the Aquarium site to be planted with native low and high marsh plant species. The salt marsh would: 1) serve as a living exhibit of the aquarium and be part of a public park; 2) remove nitrogen from seawater effluent from the aquarium's tanks and harbor waters which may be used to supplement

tank flows; and 3) produce marsh plants for use at the aquarium site and throughout the Inner Harbor.

Location : New Bedford at the site of the Commonwealth Electric facility on Cannon Street. The specific location and size of the salt marsh will be determined after study of the site and design considerations are addressed.

Timeframe: The salt marsh is to be a part of the Aquarium and will not be constructed until construction of the Aquarium is underway.

Affected Resources Addressed: Salt marsh habitat and the natural resources supported by salt marsh including plants, mammals, birds, fish and shellfish, that have been affected by the contamination in the New Bedford Harbor Environment.

Nexus to PCB Injury: Marshes on the eastern side of the Harbor north of Coggeshall Street have high levels of PCB contamination. Marine and estuarine fauna are exposed to PCBs each time they use the marsh resulting in detrimental health effects. Restoration of marsh habitat that is in the vicinity of New Bedford Harbor but is not impacted by contaminants will help support resources dependent on marshes that have been injured within the New Bedford Harbor Environment.

Benefits to Resource: Marshes and wetlands provide important habitat for many of the injured fish and wildlife resources within the Harbor Environment. Besides this habitat value, marshes and wetlands act to cleanse polluted waters, protect shorelines and provide flood protection by holding additional water. Creation of marsh habitat that has not been impacted by contaminants will help support natural resources dependent on marshes.

Benefits to Community: The salt marsh is envisioned to be a working exhibit of the aquarium and would be free for public viewing and education. The community at large will benefit from this restoration because of the increased productivity of the marsh and the increase in functions that the salt marsh serves to the New Bedford Harbor Environment, including nutrient export, nursery habitat for fish, habitat for shellfish and crustaceans, and habitat for wildlife.

## **Technical Feasibility**

Achievability: Achievability is dependant on the actual location of the salt marsh at the site. Much of the Aquarium site was historically created using fill materials, and there is potential that contaminated soils are present in the fill soils. Contaminated soils at the site exceeding state and/or federal regulatory limits may have to be removed, and soil modifications such as capping with clean soil and compaction would likely be required to make the site suitable for marsh establishment.

Reliability of Techniques: Standard marsh construction techniques would be used including removal of excess and contaminated fill, regrading, installing clean soils, and planting with native salt marsh plant species.

Impact of Remediation: Remediation of PCBs in the harbor should not have any impact on this project. There is the potential that contaminants are present in the on-site soils on site, and any contaminated materials would have to be properly disposed of. The presence of significant soil contamination could delay the implementation of the marsh construction project.

Monitoring: Monitoring would be conducted by Aquarium staff, or in conjunction with the other harbor wetland restoration projects by a private contractor or educational institution.

Estimated Cost: \$2,057,000

Estimated Match: none specified

## **Impacts on the Environment**

Biological: The site is commercially developed with virtually no habitat value. The biological environment would be greatly enhanced by creating salt marsh at this site resulting in a more diverse and functional habitat than that which is currently available at this location.

Impacts on injured resources: No marine or estuarine resources are present on the existing site. The creation of a salt marsh will directly benefit fish, shellfish and bird species which were injured by the introduction of PCBs in the Harbor Environment. No adverse effect on injured resources is expected.

Impacts on other resources/habitats:

Vegetation: No impacts on vegetation will occur since there is minimal vegetation present on-site.

Wildlife: Relatively low numbers of small mammals and birds may be present on the site and would be displaced by the construction activity. The displacement would be temporary in duration and result in habitat providing greater benefits to these natural resources than what is currently available.

Fish and shellfish: Fish and shellfish inhabit the nearby waters. The construction activities should have minimal impact on these biota. Proper soil erosion and sediment control measures will be properly installed and maintained throughout the site construction work to minimize the potential for sedimentation of nearby harbor waters.

Endangered species: No designated endangered species are known to use this site.

Physical: The site is a degraded industrial site. Significant physical changes will need to occur to create viable salt marsh at this location. Potentially contaminated fill will have to be removed and clean fill brought in to support the salt marsh plantings. The physical alterations will result in benefits to marine and estuarine natural resources when the project is completed.

Human: The site is isolated from residential areas, and minimal disturbances are expected from construction activities for the salt marsh.

**Preliminary Determination**: The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. Funding would be provided for the design, construction and planting. A boardwalk with accompanying signage would be installed to allow free public access with minimal impact to the marsh while providing an educational opportunity for the public by explaining the ecological functioning of salt marshes.

**Preliminary Funding**: \$750,000

### **2.3.1.3. Non-preferred Alternatives**

#### **2.3.1.3.1 Bridge Street, Fairhaven Wetland Restoration Project**

Proposed Action : Restoration of a wetland system on approximately 11 acres. Wetlands were filled or altered prior to construction of drive-in theater which has since been abandoned, leading to the dumping of trash and debris. Portions of the existing defunct drive-in contain low-value wetlands created as a result of the drive-in construction.

Location : Bridge Street, Fairhaven at the site of the former Fairhaven Drive-in theater.

Resource Injury: Marshes on the eastern side of the Harbor north of Coggeshall Street have high levels of PCB contamination. Species are exposed to PCBs each time they use the marsh resulting in detrimental health effects. EPA's ROD (EPA 1998) specifies dredging of salt marsh where PCB levels exceed 50 ppm. It will be a number of years before these areas will be dredged and restored, and even then some salt marsh will remain relatively contaminated (0-50 ppm). Restoration of marsh habitat that is in the vicinity of New Bedford Harbor but is not impacted by contaminants will help support fish, shellfish and other faunal species dependent on marshes that have been injured within the New Bedford Harbor Environment.

Resource Benefits: The restoration would provide wildlife habitat in an urban setting and could be designed to treat storm water runoff resulting in a reduction of metals, hydrocarbons and nutrients entering New Bedford Harbor.

Environmental Impacts: Implementation of the proposed project may be expected to provide beneficial environmental impacts through the creation/restoration of a fully functioning wetland.

Estimated Cost: \$700,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB related injury to natural resources. The Council questions whether the site is within the Harbor Environment given the site's significant distance from the Harbor. The restored marsh would be a non-tidal marsh that is functionally different from the tidal marshes contaminated within the harbor and supports different species from those injured by the PCB contamination.

### **2.3.2 Recreation Areas**

Section 3.5.3 of the RP/EIS describes the losses to the public through the contamination of the New Bedford Harbor Environment. The damage assessment conducted found lost recreational opportunities for recreational angling and beach use.

#### **2.3.2.1 No-action Alternative: No Recreation Area Enhancement or Development**

Under the no action alternative, there would be no implementation of actions to enhance or develop recreational opportunities. This would mean that the public would continue to use existing parks, beaches, and boating facilities.

There is little designated open land that is accessible to the public within the Harbor Environment; given the largely commercial nature of this area, little more is expected to become available. Much of the Harbor is fenced off to prevent public access to contaminated areas or commercial operations. This means that harbor visitors have limited opportunities to enjoy harbor vistas, or conduct harbor related activities such as fishing, swimming or boating. These activities must be conducted in the Outer Harbor where contaminant levels are lower.

Given that the cleanup will take 10 years or more to complete, and that portions of the shoreline will be taken up by confined disposal facilities, the no action alternative would

continue to limit restrictions on public access to New Bedford Harbor. Some recreational opportunities might develop through harbor master planning activities and the recent designation of the New Bedford Historic District as a National Park.

The no-action alternative should be rejected. Recreational activities and access were directly harmed by the release of PCBs into the Harbor Environment. By selecting the no-action alternative, loss of access would continue to occur with a loss of benefits to the public.

### **2.3.2.2 Preferred Alternatives**

The preferred alternative would develop or enhance certain recreational services that the injured natural resources supported within the Harbor Environment. Since one of the impacts to the community caused by PCB contamination was the loss of certain recreational opportunities. MDPH prohibits recreational fishing (except for bait) and swimming in large portions of the Harbor. PCB contamination was not sufficient to close beaches in the Outer Harbor, but still impacted their use as the number of people using those beaches declined.

A clean Harbor Environment will invite people to use and appreciate the natural resources. By developing and/or enhancing certain recreational services, a greater proportion of the community will be able to once again use the Harbor Environment. The Trustee Council sought to restore access to the recreational services for a large proportion of the public, have minimal adverse impacts on natural resources, and allow for a better understanding of the importance of those natural resources in the Harbor Environment. Preferred activities are those that secure or enhance areas along the Harbor and their passive recreational services and those that increase the public's access to natural resources.

#### **2.3.2.2.1 Community Rowing Boathouse**

##### **Project Description**

Proposed Action: This idea involves the purchase or construction of additional boats and the planning and construction of a boathouse in the Inner harbor area to be used for an existing whaleboat rowing program for youth and adults. The boathouse facility would include space for storage, repair, maintenance, and construction of boats. The program teaches young people how to row and facilitate use of the Harbor for boating. It will also provide educational programs on the area's maritime heritage and the Harbor's environmental issues.

Location: New Bedford Harbor



Time Frame: Initially a study determining the extent of the lost recreational boating service caused by PCB contamination will have to be conducted (see below). If a sufficient nexus is found, i.e. if there is a sufficient loss of recreational boating opportunities due to PCB contamination to justify the cost of the project, the next steps would be to find an appropriate location, plan and design the boathouse, construct the boathouse and then construct and house additional boats. The best estimate to complete these activities is approximately 2 years.

Affected Resources Addressed: No natural resources are addressed, rather it is the lost recreational use of the injured resources which will be addressed.

### **Rationale for Adoption**

Nexus to PCB Injury: Recreational services provided by the injured natural resources were lost in the Harbor Environment as a result of PCB contamination. For example, signs are posted which prohibit swimming and fishing, and fences are erected around the harbor to limit access. A study must be conducted to determine if there was a sufficient loss of recreational boating opportunities due to PCB contamination to justify the cost of the project.

Benefits to Resource: The primary benefit is increased access to boating in the harbor. Benefits could include increased recreational access to and use of the harbor waters for a larger portion of the community and habitat protection through greater understanding and appreciation of the Harbor Environment.

Benefits to Community: The primary benefits are the increased access to Harbor waters by the users of the boathouse and boats. If the project were funded, participation in the boating programs would be offered free of charge to all New Bedford schoolchildren.

### **Technical Feasibility**

Achievability: If the study determines that there is a sufficient nexus (see below) the next steps could proceed. Assuming there is such a nexus, the implementation of the project should achieve the goal of increase use and access to Harbor waters through the boating program.

Reliability of Techniques: Standard design and construction techniques would be used to accomplish this project.

Impact of Remediation: There is not expected to be any impact from cleanup activities. While the actual location of the boathouse is still to be determined, it is not expected to be located where a CDF is constructed or dredging will occur. The location of these cleanup activities is well known and can easily be incorporated in planning for the boathouse.

Monitoring: Monitoring would be comprised of determining whether there has been increased use of the various boating programs available to the various target groups.

Estimated Cost: \$250,000

Estimated Match: Possible but to be determined.

### **Impacts on the Environment**

The actual location of the boathouse is yet to be determined. Until such time it is difficult to evaluate the actual impacts to the environment since these are primarily site specific. The Trustee Council will encourage the applicant to locate in a site where there is minimal impact to the natural resources present and the surrounding neighborhoods. Existing locations should be examined before the decision to build is made.

**Preliminary Determination:** Any funding for this idea is contingent upon obtaining the results of the study, described below, that demonstrate a sufficient injury to recreational boating and access to the Harbor due to PCB contamination to justify the expense of the proposal. Accordingly, if the study demonstrates such an injury to recreational boating and access to the Harbor due to PCB contamination, the overall goal of this project is to compensate for the interim lost access and natural resource service by providing the equivalent of such lost access and natural resource service, namely providing people with a means of direct access to the Harbor through an on-the-water activity within the Harbor. The provision of additional boats or construction of new boat(s) and a boathouse would address this goal by allowing an expansion of an existing harbor-oriented boating program with an emphasis on youth rowing. In addition the boathouse could possibly be used for similar programs offered by other groups.

The Council recommends commissioning a study to evaluate whether there has been other lost recreational use(s) of the New Bedford Harbor Environment. The information resulting from the study would then be available to determine which recreation projects are legally fundable and, possibly, the level of funding the Trustees should consider relative to other recreational projects and restoration priorities.

**Preliminary Funding:** \$275,000 (\$25,000 for a study, \$250,000 in reserve)

### **2.3.2.3 Non-preferred alternatives**

The following alternatives are non-preferred:

#### **2.3.2.3.1 Fairhaven Recreation Center Pool**

Proposed Action: The Town of Fairhaven proposes to construct an indoor swimming pool/locker room as part of the proposed Fairhaven Recreation Center and Senior Center which will be used for swimming lessons and recreational use.

Location: Junction of routes 6, 240 and Sconticut Neck Road, Fairhaven

Resource Injury: Contamination in the harbor has caused restrictions on the use of the harbor and coastal waters which has led to a loss of swimming locations. The pool project would replace lost opportunities to swim in clean water. Public and semi-public areas are unable to provide for the needs of town residents due to the PCB contamination.

Resource Benefits: There are no evident benefits to natural resources, though there will be public benefits through increased recreational opportunities. The facility would also provide services to those of low or moderate income who could not afford other alternatives.

Environmental Impacts: Any environmental impacts would be short-term and associated with construction of the center. Best management practices would be expected to be used to minimize associated environmental impacts and human impacts resulting from noise and dust.

Estimated Cost: \$1,300,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB related injury to natural resources. While swimming may have been affected, the construction of a facility which provides access to an artificial site for swimming does not provide replacement for lost swimming in the natural environment of the harbor.

#### **2.3.2.3.2 Pease Park Access Improvements**

Proposed Action: This idea would implement improvements to an existing public landing to aid in access to the harbor. It would entail dredging the harbor approach to the landing, widening the existing boat ramp, installing launch piers on either side of the ramps, shoring up the sides of the ramps and providing a ten slip floating dock for transient boats.

Location: Pease Park, Fairhaven

Resource Injury: Public access to the harbor is greatly limited, in part due to contamination.

Resource Benefits: There are no apparent natural resource benefits though enhanced public access would be expected. The improvement to the boat ramp might minimize the need to create new points of access thereby reducing the possibility of resuspending contaminated sediments during construction of these new access points.

Environmental Impacts: Minimal adverse impacts would be expected to result from implementation of the proposed project. The site is already an active boat ramp and with associated disturbance of the bottom sediments. It is not believed that there are excessive contaminants in the area but efforts should be undertaken to minimize resuspension of the bottom sediments.

Estimated Cost: \$600,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB injury to natural resources. In addition the project may result in direct changes to the harbor Environment that might not be beneficial to the injured natural resources. Moreover, it is not clear whether the proposed boat ramp improvements will increase recreational boat usage or simply make it easier for existing boat ramp users to launch their boats.

#### **2.3.2.3.3 Landing and Recreational Facilities on Palmer's Island**

Proposed Action: Create facilities that will enable harbor tour boats and water taxis to pickup and discharge passengers and to accommodate small boat use of the island. The island could be cleared and replanted, and paths, picnic tables and other amenities would be provided.

Location: Palmer's Island, New Bedford

Resource Injury: Recreational opportunities were lost as a result of PCB contamination.

Resource Benefits: Benefits could include increased recreational access for a larger portion of the community.

Environmental Impacts: There are concerns about locating a pier on Palmer's Island and any potential location should be examined carefully. The waters surrounding

Palmer's Island contain high numbers of shellfish and a pier and boating activities could impose detrimental impacts on this resource.

Estimated Cost: \$250,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB injury to natural resources. There were concerns that the project would primarily benefit a commercial entity. The Council determined that there were shellfish in the vicinity of the island which could be harmed by the potential detrimental effects of increased boat traffic and docking activity at the location.

#### **2.3.2.3.4 Youth Sailing Center**

Proposed Action: The idea would relocate the existing Community Boating Center (CBC) to a new facility allowing an expansion of programs. It would involve the purchase of several lots of land off of Padanaram Avenue, the construction of a facility with a meeting room, office and showers, a storage building, the repair of an existing pier, and parking facilities. The need to locate out of the Harbor is due to swimming being an important component of the sailing program. The contamination of the Harbor prevents the CBC from conducting its program safely in the Harbor.

Location: Padanaram Avenue, New Bedford

Resource Injury: The PCB contamination has eliminated certain human uses of the harbor and degraded the value of the harbor environment.

Resource Benefits: While there would not be any direct natural resource benefits, the Youth Sailing Center would restore some of the lost human recreational uses.

Environmental Impacts: There would be two components to this project B shoreside construction and in-water work associated with the repair of a pier. The shoreside construction should result in minimal impacts provided that efforts are made to reduce erosion and dust during construction. In-water work should be done in a manner to minimize resuspension of bottom sediments and to control and release of debris or contaminants.

Estimated Cost: \$1,200,000

Estimated Match: possible

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB injury to natural resources. Further, it does not appear that there was a negative impact on the CBC program. The CBC has a facility already and is conducting its program within the Harbor Environment. To locate a CBC out of the harbor would not greatly restore, replace or acquire the equivalent of injured resources within the New Bedford Harbor Environment. There is also some question whether there was lost recreational boating use through the PCB contamination in the Harbor. The Council has recommended commissioning a study to answer this question. (See 2.3.2.2.1)

### **2.3.3 Water Column**

The water column includes all fresh, salt and estuarine waters in the New Bedford Harbor Environment. PCBs are present in the water column where they can be a source of contamination to fish and wildlife species that use, live or swim in the water column. Demersal fish receive contaminant exposure through the water column as well as bottom sediments. Representative species include winter flounder, bluefish, blueback herring and Atlantic silverside. Phytoplankton and zooplankton including copepod and diatom species receive exposure through the water column. Bivalve mollusks including Atlantic ribbed mussel, blue mussel, Atlantic bay scallop, and the Eastern oyster receive exposure through the water column rather than the sediment. (EPA, 1990)

In addition to PCBs, other types of contamination may be present in the water column including human sewage, heavy metals, industrial discharge, salt and grit from roads, agricultural products, and petroleum products. All contribute to the degradation of the water column. The addition of the New Bedford Wastewater Treatment Plant is expected to improve the water quality in the Inner Harbor. But the problem still remains of combined sewage overflows discharging untreated wastewater during periods of high stormwater flow.

#### **2.3.3.1 No-action Alternative: No Water Column Restoration**

Pursuant to the no-action alternative, the Trustee Council would refrain from taking action to restore the water column, relying instead on the wastewater treatment plant improvements and Harbor remediation alone, which includes some water treatment for removal of PCBs. As discussed in Chapter 3 of the RP/EIS, the remediation will remove the bulk of, but not completely eliminate the PCBs from the Harbor sediments; thus continuing, albeit greatly reduced, exchange of contaminants between the sediments and water column is expected following clean-up.

Under the no-action alternative, water-column concentrations of PCBs could be expected to decline over time. There is doubt as to when acceptable levels ("ambient

water quality criteria," or AWQC) would be reached. As discussed in Chapter 3 of the RP/EIS, the process might take two decades or more. Other factors stand to impede the recovery of the Harbor's water column from PCB contamination, particularly in the Inner Harbor and Upper Estuary. Most notable is the presence of the Hurricane Barrier, which greatly restricts tidal flushing in these areas.

Meanwhile, the water column of New Bedford Harbor remains the principal pathway by which living resources are exposed to the contamination of the Harbor sediments. As discussed in Chapter 3 of the RP/EIS, the fish, shellfish, birds, and invertebrates of the Harbor have been, and will continue to be, severely affected by PCB contamination of the water column of New Bedford Harbor.

### **2.3.3.2 Preferred Alternatives**

The preferred approach is to initiate actions to enhance or restore the overall quality of the water column. This would require cooperative efforts with other agencies such as ACOE, EPA and local agencies. A water column free of, or one containing fewer contaminants, will be less likely to pass contamination on to the natural resources that inhabit it.

#### **2.3.3.2.1. Upper Sconticut Neck Sewer/Shellfish**

##### **Project Description**

Proposed Action: The Town of Fairhaven proposes to install a public sewer system allowing 450 residences now on individual septic systems to tie into the municipal sewer system. The funding requested would allow the Town to design, engineer and construct the system which is proposed to be done in two phases.

Location: Northern portion of Sconticut Neck, Fairhaven

Timeframe: Short-term, unaffected by cleanup.

Affected Resources addressed: The water column and the shellfish resources that reside in or use the Harbor Environment.

##### **Rationale for Adoption**

Nexus to PCB Injury: The proponent states that shellfish and other marine fish and their supporting habitats in the northern portion of Sconticut Neck have been injured and degraded by both PCB releases and contamination from residential septic systems and storm water runoff. It is believed that because of the continued environmental stresses imposed by poor water quality (caused in large part by release of fecal coliform),

remediation of PCB contamination alone will not be sufficient to ensure the restoration of injured marine species in this environment. Therefore by removing a significant source of stress to the PCB injured resources, this project would facilitate restoration of all resources in the area including fish, harvestable shellfish and their supporting habitat.

Benefits to Resource: Elimination of fecal contamination and reduction in the nutrient load in this portion of the harbor should lead to increased water quality benefitting the marine and estuarine natural resources in this area. It is believed that by eliminating individual failing septic systems, the Town will be successful at eliminating the major source of contamination of the local shellfish beds and allow harvest of these resources.

Benefits to Community: Increased water quality would allow greater shellfish harvest capability.

### **Technical Feasibility**

Achievability: The conversion from individual septic systems to a municipal sewer system is a standard approach that it expected to reduce the release of contaminants into the groundwater and harbor water column. What is less certain is how much of a contribution will occur to shellfish health by the conversion. The water quality impacts to shellfish may result from a variety of sources such as contaminated storm water runoff, and more information is needed before a final decision can be made for the Trustee Council to move forward on this project.

Reliability of Techniques: Construction of the extension of the municipal wastewater system will be done with proven and reliable methods.

Impact of Remediation: There should be no impact by cleanup activities. The areas to be remediated are located away from the Sconticut Neck area.

Monitoring: The water quality of the waters off of Sconticut neck will be the predominant measure of success. Periodic and regular sampling will be required to be performed to measure success.

Estimated Cost: \$7.6 million

Estimated Match: \$3.8 million from betterment fees (phase 1 - \$2.6 million, phase 2 - \$1.2 million)

### **Impacts on the Environment**



There would be minimal or no environmental impacts resulting from the study and/or engineering design which the Trustee Council has proposed to fund. The actual construction of the sewer system could have significant impacts but with beneficial results and would be subject to an environmental review.

**Preliminary Determination:** After consideration of the public comments received, the Council would fund a study, using an initial \$150,000, to determine the actual sources of the contamination of the shellfish beds and recreation area and if determined, the most appropriate way to correct the problem. A second amount would be placed in reserve pending the results of the study. This second amount could, if appropriate, then be used for engineering design.

**Preliminary Funding:** \$150,000 for study, \$550,000 in reserve (based upon results of study)

### **2.3.3.3 Non-preferred Alternatives**

#### **2.3.3.3.1 Save the Acushnet River Resources (STARR)**

**Proposed Action:** The idea would install a pump out sanitation system and docks to accommodate the system at a New Bedford marina. The idea would include accommodations for an additional 30 slips in a self maintained oil and fuel spill environment. The availability of a pump out facility at this location would encourage greater compliance with state discharge regulations.

**Location:** Gear Locker Marina, Popes Island, New Bedford

**Resource Injury:** Natural resources continue to be injured by the release of fecal and oil contaminants in the harbor.

**Resource Benefits:** If implemented, the idea would maximize the effects of other restoration projects by reducing the contaminant load of human waste, fuel and oil.

**Environmental Impacts:** Implementation of the project may be expected to provide beneficial impacts through the removal of wastes and the containment of contaminants in the water column despite the potential increases in vessels using the facility. Any in-water work should be done in a fashion to minimize resuspension of sediments which may contain contaminants.

**Estimated Cost:** \$210,000

Estimated Match: \$40,000

Rationale for Non-preference: It is not evident to the Trustee Council that the project will provide any benefits to resources that are not available already through other means. There are pump-out facilities available at Popes Island and the Coast Guard has contracted with a local company to provide first-response oil spill containment services.

#### **2.3.3.3.2 Eliminating Toxic Chlorine Discharge from Fairhaven Wastewater Treatment Plant (WWTP)**

Proposed Action: The project would upgrade the wastewater treatment plant by eliminating the use of chlorine and replacing it with ultraviolet treatment. Ultraviolet remediation beds and associated facilities would be installed at the WWTP. Planning and construction time would take approximately 18-24 months.

Location: Fairhaven WWTP

Resource Injury: The Fairhaven WWTP is reported to be the largest point source of wastewater pollution in the Inner Harbor. Chlorine is employed as the primary mechanism for disinfection. As a result, the plant contributes a steady input of chlorine to the Harbor Environment which can be toxic to marine life.

Resource Benefits: The upgrade would eliminate a significant source of toxic chlorine discharge which would lead to improvements in water quality and the quality and abundance of living marine resources.

Environmental Impacts: Implementation of the proposed project would be expected to provide beneficial environmental effects by reducing the chlorine levels in the water column.

Estimated Cost: \$1,200,000

Estimated Match: unknown

Rationale for Non-preference: The Fairhaven WWTP discharge is subject to permitting under the Clean Water Act's National Pollutant Discharge Elimination System (NPDES). The Trustee Council policy does not permit funding of projects that are otherwise required. (See 64 FR 44507, August 16, 1999)

#### **2.3.3.3.3 The Restoration of Fish and Shellfish on Both Sides of Sconticut**

Proposed Action: Sewer 2/3 of Sconticut Neck to prevent the release of contaminants during rain events.

Location: Sconticut Neck, Fairhaven

Resource Injury: Contamination from residential septic systems and stormwater runoff has led to the closure of shellfish beds off Sconticut Neck. Despite efforts to correct the problem, the contamination still occurs.

Resource Benefits: It is believed that by eliminating the individual septic systems, the Town will be successful at eliminating the major source of contamination of the local shellfish beds allowing harvest. Elimination of fecal contamination will reduce the nutrient load in this portion of the harbor which should lead to increased water quality benefitting the natural resources in this area.

Environmental Impacts: This project is expected to provide beneficial environmental effects to the natural resources, especially the shellfish resource.

Estimated Cost: \$8-10 million

Estimated Match: no

Rationale for Non-preference: This is essentially the same idea as the preferred alternative under 2.3.3.2.1, in which the Trustee Council recommended providing partial funding.

## **2.3.4 Habitats**

Habitat is the complex of geographic features, hydrologic conditions, and living organisms within an ecosystem that provide food, nesting, reproduction, and resting areas, and shelter for fish and wildlife. Habitat restoration would be a basic component of natural resource restoration in the New Bedford Harbor Environment, since, as described in Chapter 3 of the RP/EIS, habitat is essential to the living resources of the Harbor.

As demonstrated by the following preferred alternatives, restoration, enhancement, or replacement of habitat in the New Bedford Harbor Environment has the potential to substantially improve the abundance and health of a wide variety of living natural resources.

### **2.3.4.1 No-action Alternative: No Habitat Restoration or Enhancement**

Under the no-action alternative, the Trustee Council would not implement habitat restoration actions in the New Bedford Harbor Environment. Under this alternative, animals and plants would continue to live in habitats degraded by PCB contamination and other factors. In many cases, this would preclude the success of efforts to restore living resources injured by the PCB contamination, because habitat restoration is often the most cost-effective way--indeed in many cases, the only practical way--to restore populations of plants and animals.

As discussed in Chapter 3 of the RP/EIS, PCB contamination in the New Bedford Harbor Environment has depressed populations of plants and animals and reduced the diversity of estuarine species. However, in a highly urbanized environment such as New Bedford Harbor, most living resources--plants, fish, shellfish, birds, and terrestrial animals--are subject to multiple stressors caused by the cumulative impacts of contamination, habitat loss, and other factors. Habitat loss is often a critical factor preventing the recovery of populations that have been depressed or otherwise injured by contamination or other forms of environmental degradation in a developed estuary such as New Bedford Harbor. The no-action alternative would prevent some resource populations in New Bedford Harbor from recovering from the effects of PCB releases, and would greatly extend the period of recovery for others.

#### **2.3.4.2 Preferred Alternatives**

Preferred alternatives are those that provide direct restoration or enhancement of affected habitat. In many of the affected habitats of the New Bedford Harbor Environment, however, restoration must wait until cleanup is complete. Therefore, the focus of near-term habitat restoration will be on those areas that can be enhanced to provide greater habitat value and environmental returns as well as providing protection to the natural resources from future stressors. Under the types of actions contemplated for this priority, land acquisition is considered. Section 4.3.4.2 of the RP/EIS provides the rationale for land acquisition and the procedures the Trustee Council will follow to determine the appropriateness of providing funds for the acquisition.

##### **2.3.4.2.1 Popes Beach Land Purchase (Northern Portion)**

#### **Project Description**

Proposed Action: The idea would acquire and impose a conservation restriction on six parcels of land on the western shore of Sconticut Neck for a combined acreage of 2.6 acres and 470 feet of coastal frontage. This property consists of dunes, beach, sand flats and salt marsh habitats. Just offshore are recreational shellfish beds. The property abuts town conservation land.

Location: Northwestern side of Sconticut Neck, Fairhaven at the foot of Hacker Street and Highland Avenue.

Timeframe: The land purchase could proceed soon after pre-acquisition activities have concluded and funding is available.

Affected resources addressed: Salt marsh, uplands, dunes, beach, sandflats and the natural resources supported by these habitat types including plants, mammals, birds, fish and shellfish.

### **Rationale for Adoption**

Nexus to PCB Injury: The project would acquire and protect equivalent resources to those that were damaged by the PCB contamination in New Bedford Harbor.

Benefits to Resource: The benefits of providing funds for the purchase of this property would be the protection of the habitat from future development and the preservation of public recreational access. The purchase would contribute indirectly to the protection of the shellfish resource. This property would add to the growing inventory of undeveloped coastal wetlands along Sconticut Neck and is contiguous to undeveloped wetlands in upper Priests Cove.

Benefits to Community: The public would be able to access the property for recreational activities including fishing. The property is near the Phoenix Bicycle Trail which will assist in increasing access to the site.

### **Technical Feasibility**

Achievability: The property is a combination of six parcels owned by four different parties. The Trustee Council would work with the Town of Fairhaven to ensure that the acquisition occurs and the natural resource benefits are achieved.

Reliability of Techniques: Land acquisition with the imposition of a conservation restriction is a proven method to preserve and protect natural resources and enhance recreational opportunities within an appropriate parcel of land. The conservation restriction must be approved and held by the Commonwealth of Massachusetts.

Impact of Remediation: This site is outside of the area expected to be impacted by remediation activities.

Monitoring: Monitoring would occur through periodic site visits to the property to determine use and any adverse impacts to the property or abutting properties.

Estimated Cost: \$55,000

Estimated Match: none

## **Impacts on the Environment**

Biological: Benefits to biological resources should continue to occur through the permanent protection and preservation of this site from future development.

Impacts on injured resources: There are no expected negative impacts to injured natural resources (fish, shellfish, birds, vegetation) through the acquisition of this property. Rather, there will be continued protection of habitat suitable for sustaining these species.

Impacts on other resources/habitats:

Vegetation: The purchase of this property will preserve the vegetation located on this site and will protect it from future development.

Wildlife: The purchase of this property will provide protection to the wildlife (birds, small mammals, insects) located on this site.

Fish and shellfish: The purchase of this property will provide permanent protection to the fish and shellfish located offshore by preventing the harmful effects associated with residential development.

Endangered species: No designated endangered species are known to use this site area.

Physical: No physical impacts are expected to occur other than through increased use of the property. The Trustee Council will work with the applicant to ensure that sensitive areas are protected and appropriately marked.

Human: Beneficial impacts will occur through increased access to the natural resources on the property.

**Preliminary Determination:** The Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Council would provide funds for the Town of Fairhaven to acquire the properties and ensure that an appropriate conservation restriction is placed on the property.

**Preliminary Funding:** \$55,000

### **2.3.4.2.2 Popes Beach Land Purchase (Southern Portion)**

## **Project Description**

Proposed Action: Acquire and impose conservation restrictions on two parcels on the western shore of Sconticut Neck for a combined acreage of 3.5 acres and 400-foot of shoreline frontage. Acquisition would provide recreational access and habitat preservation.

Location: Northwestern side of Sconticut Neck, Fairhaven

Timeframe: The land purchase could proceed soon after pre-acquisition activities have concluded and funding is available.

Affected resources addressed: Salt marsh, uplands, dunes, beach, sandflats and the natural resources supported by these habitat types including plants, mammals, birds, fish and shellfish.

## **Rationale for Adoption**

Nexus to PCB Injury: The project would acquire and protect resources equivalent to those that were damaged by the PCB contamination in New Bedford Harbor.

Benefits to Resource: The shoreline edge is characterized by a dune-like plant community. The intertidal sandflat and nearby subtidal waters provide feeding and cover habitat for estuarine finfish species. The remaining property is characterized by shrub, sapling and common reed-dominated plant community cover. The benefits of providing funds for the purchase of this property would be the protection of the habitat from future development and the enhancement of public recreational access.

Benefits to Community: The site appears to provide excellent access.

## **Technical Feasibility**

Achievability: The property is composed of two parcels. The Trustee Council would work with the Town of Fairhaven to ensure that the acquisition occurs and the natural resource benefits are achieved.

Reliability of Techniques: Land purchase and imposition of a conservation restriction is a simple and proven method to preserve and protect natural resources and enhance recreational opportunities within an appropriate parcel of land. The conservation restriction must be approved and held by the Commonwealth of Massachusetts.

Impact of Remediation: This site is outside of the area expected to be impacted by remediation activities.

Monitoring: Monitoring would occur through periodic site visits to the property to determine use and any adverse impacts to the property or abutting properties.

Estimated Cost: \$145,000

Estimated Match: none

## **Impacts on the Environment**

Biological: Benefits to biological resources should continue to occur through the permanent protection and preservation of this site from future development.

Impacts on injured resources: There are no expected negative impacts to injured natural resources (fish, shellfish, birds, vegetation) through the acquisition of this property. Rather there will be continued protection of habitat suitable for sustaining these species.

Impacts on other resources/habitats:

Vegetation: The purchase of this property will preserve the vegetation located on this site and will protect it from future development.

Wildlife: The purchase of this property will provide protection to the wildlife (birds, small mammals, insects) located on this site.

Fish and shellfish: The purchase of this property will provide permanent protection to the fish and shellfish located offshore by preventing the harmful effects associated with residential development from occurring.

Endangered species: No designated endangered species are known to use this site area.

Physical: No physical impacts are expected to occur other than through increased use of the property. The Trustee Council will work with the applicant to ensure that sensitive areas are protected and appropriately marked.

Human: Beneficial impacts will occur through increased access to the property's natural resources which in past years has been restricted at times.

Preliminary Determination: The Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Council would provide funds for the Town of Fairhaven to acquire the properties and ensure that an appropriate conservation restriction is placed on the property.



**Preliminary Funding:** \$145,000

#### **2.3.4.2.3 New Bedford Aquarium - (Artificial Reef)**

##### **Project Description**

Proposed Action : The idea would involve construction of a reef 3 to 4 times the size of an existing artificial reef off Salter's Point, Dartmouth, MA, constructed in 1998. The reef would provide habitat for fish, shellfish and marine invertebrates while providing increased fishing opportunities since sportfish tend to congregate around such structures.

Location: Buzzards Bay/New Bedford Outer Harbor

Timeframe: Short-term. While the reef idea was submitted in conjunction with the New Bedford Aquarium proposal, the construction of an artificial reef is not dependent on construction of the Aquarium. The Trustees recommend that a study be done initially to determine the appropriate location(s) for the reef(s).

Affected resources addressed: Fish and shellfish resources impacted by the PCB contamination in the harbor.

Nexus to PCB Injury: Bottom habitat has been negatively impacted by the release of PCBs which settled into the bottom sediments. Living resources using or coming in contact with the bottom risk contamination from the PCBs. An artificial reef in an uncontaminated area provides a cleaner, safer habitat for the impacted marine species.

Benefits to Resource: Properly constructed and appropriately located artificial reefs can: 1) enhance or replace injured fish habitat; 2) facilitate access and utilization by recreational and commercial fishermen to quality fishing grounds; 3) provide benefits to anglers as well as the economies of shore communities; and 4) increase total fish biomass within a given area.

Benefits to Community: Recreational fishermen or divers could visit and use the reef.

##### **Technical Feasibility**

Achievability: Success is dependent on location. The Council proposes to fund an initial study of the possible locations around the Outer Harbor where the construction of a reef will provide the desired benefits.

Reliability of Techniques: A variety of structures have been used to create artificial reefs. They can utilize sunken vessels, rocks or boulders, or man-made structures comprised of concrete or other materials. The success of these structures is largely dependent upon location, source of food, water circulation, water clarity and light.

Impact of Remediation: The reef will not be located in an area where cleanup activities will be occurring.

Monitoring: A baseline survey of the proposed site(s) should be accomplished followed by monitoring accomplished through periodic dives on the site(s) to census the marine species present and comparing to the baseline results.

Estimated Cost: \$1,366,000

Estimated Match: none specified

### **Impacts on the Environment**

Biological: Artificial reefs are expected to provide positive biological benefits by providing a vertical structure that can be used by a variety of marine organisms. The reef can provide shelter, habitat and can concentrate food. Care should be taken to avoid locating the reef on an already productive bottom habitat.

Impacts on injured resources: An artificial reef is expected to provide a beneficial impact to injured natural resources by providing shelter, habitat and a concentrated food source.

Impacts on other resources/habitats:

Vegetation: Care should be taken to avoid placing the reef structure in an area containing subaquatic vegetation. Provided this is done, there should be no further impact to marine vegetation.

Wildlife: No wildlife other than diving birds would be expected to be in the vicinity of the artificial reef. Diving birds would benefit because of a concentrated food supply at these locations.

Fish and shellfish: Direct positive benefits for fish and shellfish will result from the placement of an artificial reef in the Outer harbor. The reef will provide habitat, shelter and would concentrate food for these species.

Endangered species: Artificial reefs may serve as an attractant to endangered sea turtles but are not expected to provide any negative impacts. Rather the reef may serve to provide a food source for these turtles by concentrating marine species.

Physical: Minimal short-term negative impacts are expected during the construction of the reef. Care should be taken to control placement of the reef in the designated location.

Human: There are expected human benefits to be derived from fishing in the vicinity of the reef and through recreational diving. The reef would be placed in allocation that will not interfere with commercial fishing or vessel navigation.

**Preliminary Determination**: The Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Council would provide funding for a determination of appropriate locations, material and structure. If such a location is found, a reef would be constructed with restoration funds. The reef would also provide an opportunity for research and data collection. Funding would also include a monitoring component to determine if the goals are being met and anticipated benefits are being realized by the injured natural resources.

**Preliminary Funding**: \$500,000

#### **2.3.4.2.4 Riverside Auto Wrecking Land Acquisition**

##### **Project Description**

Proposed Action: This idea would purchase and impose conservation restrictions on four lots in Acushnet totaling approximately 14.3 acres of land in the upper harbor portion of the New Bedford Harbor Superfund Site. The initial idea was to acquire a one-acre parcel of land owned by Riverside Auto Wrecking. This idea was revised to include three other abutting parcels in the vicinity.

Location: Acushnet shoreline

Timeframe: Short-term, unaffected by cleanup.

Affected resources addressed: Wetlands, estuarine fish and invertebrates, birds as well as recreational opportunities.

##### **Rationale for Adoption**

Nexus to PCB Injury: The wetland fringe is one of the areas determined to be contaminated by PCBs and will be remediated by removing the contaminated portion followed by replanting. The applicant hopes to use the parcels for scientific study, environmental education and habitat restoration.

Benefits to Resource: The purchase would preserve the land from redevelopment and provide protection to the wetlands or wetland fringe adjacent to the properties.

Benefits to Community: The public would be able to use and enjoy the properties and the harbor vistas they provide. The site would also be used for educational programs.

### **Technical Feasibility**

Achievability: The property is composed of four parcels with three owners. The Trustee Council would work with the applicant to ensure that the acquisition occurs and the natural resource benefits are achieved.

Reliability of Techniques: Land purchase with the imposition of a conservation restriction is a simple and proven method to preserve and protect natural resources and enhance recreational opportunities within an appropriate parcel of land. The conservation restriction must be approved and held by the Commonwealth of Massachusetts.

Impact of Remediation: This site overlooks the area expected to be impacted by remediation activities. Some of the wetland areas may be subject to the cleanup and the Council and applicant will work closely with the EPA to determine if there will be any impacts. The land acquisition should not be affected if wetland cleanup occurs.

Monitoring: Monitoring would occur through periodic site visits to the property to determine public use and any adverse impacts to the property or abutting properties.

Estimated Cost: \$675,000

Estimated Match: none

### **Impacts on the Environment**

Biological: Benefits to biological resources should continue to occur through the permanent protection and preservation of this site from future development.

Impacts on injured resources: There are no expected negative impacts to injured natural resources (fish, shellfish, birds, vegetation) through the acquisition of this property. Rather there will be continued protection of habitat suitable for sustaining these species.

Impacts on other resources/habitats:

Vegetation: The purchase of this property will preserve the vegetation located on this site.

Wildlife: The purchase of this property will provide protection of the wildlife and associated habitat at this location.

Fish and shellfish: The purchase of this property will preserve the vegetation located on this site.

Endangered species: No designated endangered species are known to use this site area.

Physical: Positive physical impacts are expected to occur prompted by the purchase of this property. The salvage automobiles and parts on the Riverside Auto Wrecking parcel are expected to be removed (at no expense of Harbor funds) and would be a condition of the purchase. After acquisition, minimal physical impacts are expected to occur and would be associated with walkway construction or associated buildings for interpretive and educational programs. The Trustee Council will work with the applicant to ensure that sensitive areas are protected and appropriately marked.

Human: Beneficial impacts will occur through increased access to the property's natural resources. The applicant is in discussion with the Wampanoag Tribe to possibly locate a museum on the site to display artifacts found in the area.

**Preliminary Determination**: The Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Trustee Council believes that the purchase of these parcels would enhance the function of the adjacent wetlands and the aesthetics of the upper harbor. The Council is not able to provide funding for the cleanup of the junkyard which must be accomplished using other sources of funding prior to the acquisition. The Council would not provide funding for staffing since the pre-acquisition tasks would be done through contracts issued by the Council's staff.

**Preliminary Funding**: \$675,000

#### **2.3.4.2.5 Acushnet River Valley Land Conservation Project**

##### **Project Description**

Proposed Action: This idea involves the purchase of a fee interest and/or conservation restriction for approximately 245 acres of land along the Acushnet River. The land is characterized by 1.5 miles of non-tidal riverfront containing hardwood and pine forests, open farm land, red maple and shrub swamps and freshwater meadows.

Location: Acushnet

Timeframe: Short-term, unaffected by cleanup.

Affected resources addressed: Anadromous fish, birds and wetlands that were impacted by the PCB contamination.

Nexus to PCB Injury: River lands were lost or injured due to PCB contamination along the Acushnet River. While the site is not contiguous to the area of contamination, it provides much needed protection to the natural resources, particularly anadromous fish injured by the contamination.

Benefits to Resource: Protection of water quality downstream and the protection of passive recreation lands and/or fish and wildlife habitats. While the site is not contiguous to the area of contamination, it provides much needed protection to the natural resources, particularly anadromous fish injured by the contamination.

Benefits to Community: Most of the protected acreage in this proposal will ultimately be accessible by the public.

## **Technical Feasibility**

Achievability: The acquisition would be accomplished through a variety of means including outright purchase and the use of a conservation restriction. Acquisition of a fee interest and imposition of a conservation restriction will result in permanent protection of the properties, and the adjoining river from future development.

Reliability of Techniques: Land acquisition and the imposition of a conservation restriction is a reliable technique for providing permanent protection for future development provided. The conservation restriction must be approved and held by the Commonwealth of Massachusetts.

Impact of Remediation: This area is located within the defined New Bedford Harbor Environment but is outside the area of expected cleanup.

Monitoring: Monitoring would be accomplished through periodic site visits to determine use and impacts from that use.

Estimated Cost: \$964,000

Estimated Match: none

## **Impacts on the Environment**

Biological: Benefits to biological resources should continue to occur through the permanent protection and preservation of this site from future development.

Impacts on injured resources: There are no expected negative impacts to injured natural resources (fish, shellfish, birds, vegetation) through the acquisition of this property. Rather there will be continued protection of habitat suitable for sustaining these species.

Impacts on other resources/habitats:

Vegetation: The purchase of this property will preserve the vegetation located on these properties.

Wildlife: The purchase of this property will provide protection of the wildlife and associated habitat at this location.

Fish and shellfish: The purchase of this property will preserve the vegetation located on this site.

Endangered species: One species of state-designated Special Concern may be present at this location. The Massachusetts Natural Heritage and Endangered Species Program has identified parts of the Upper Acushnet River to contain Ligumia nasuta (Eastern Pondmussel) which is afforded protection under the Massachusetts Endangered Species Act (MGL 131A) and its implementing regulations (321 CMR 10.00). The mussel occurs in sheltered areas of lakes, slackwater areas or rivers, and in canals while favoring sand, silty-sand, and to a lesser extent gravelly substrates in slow-moving or still water. While this species may be present, the land purchase is not expected to cause any adverse impact to this species, rather, it should provide additional protection from future harm through development.

Physical: No physical impacts are expected to occur other than through increased use of the property. The Trustee Council will work with the applicant to ensure that sensitive areas are protected and appropriately marked.

Human: Beneficial impacts will occur through increased access to the property.

**Preliminary Determination:** The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. This project acquires and protects against development, the equivalent of river lands lost or injured due to contamination along the Acushnet River. In addition, the acquisition and protection of this land will help to restore downstream natural resources which were injured through PCB contamination. The proposed tracts of land appear to have high habitat value and would greatly contribute to protection of the Acushnet River watershed.

**Preliminary Funding:** \$964,000

#### **2.3.4.2.6 Upper Harbor Confined Disposal Facility (CDF) Enhancements for Recreation, Habitat and Access**

##### **Project Description**

Proposed Action: Three shoreline CDFs (A, B and C) are to be built north of Coggeshall Street for storage of contaminated sediments. This idea proposes to replace some of the impacted shoreline habitat by planting appropriate native species on the CDF. It would also construct bike paths, a boat ramp and possibly a pedestrian footbridge. While implementation of the project would be at least 5 years away, the planning for these elements should occur now.

Location: Upper New Bedford Harbor

Timeframe: Long-term. Enhancement of the CDF would have to occur after the cleanup, and after settling and capping of the sediments has occurred.

Affected resources addressed: Riparian habitat for shoreline birds and other wildlife, and recreational use of the Acushnet River and its shoreline.

##### **Rationale for Adoption**

Nexus to PCB Injury: Two of the three CDFs will be located in the vicinity of the Superfund Site AHot Spot®, the area of greatest contamination, and the area of greatest injury from PCB contamination to marine fish, shellfish, birds, marshes and the water column. In addition, PCB contamination has caused restricted access to the harbor and its resources. Design of the CDFs to incorporate appropriate native species on the side walls and top of the CDFs will replace habitat injured by PCB contamination as well as providing clean habitat to help restore those species injured by PCB contamination.

Benefits to Resource: Increased habitat value will occur through native plantings on the top of the CDF and potentially on the sides.

Benefits to Community: Interested residents could be involved by providing comments on the design and use of the structures. The project would enhance the public's ability to access and use the Acushnet River and shoreline resources.



## Technical Feasibility

Achievability: The CDFs will be built by the ACOE and EPA. An initial study is necessary to determine appropriate plantings to use on such a structure. The plantings should not interfere with the integrity of the structure while still providing habitat value to the wildlife resources impacted by PCBs in the Upper Harbor portion of the site.

Reliability of Techniques: The study and plantings will utilize established techniques.

Impact of Remediation: Other than a study, this project can only be implemented after the contaminated sediments have been placed in the CDF, they have been allowed to settle and an appropriate cap has been placed on top. This project is strictly dependent on the remediation and is designed to enhance the shoreside natural resources.

Monitoring: Monitoring of the plantings will be accomplished through periodic site visits to determine survivability of planting and their utilization by wildlife species.

Estimated Cost: \$2,400,000

Estimated Match: none

## Impacts on the Environment

The discussion of impacts contained in this EA focuses strictly on the Trustee Council's preliminary decision to fund only the habitat plantings aspect of the restoration idea. This EA does not evaluate the impacts of the actual construction of the CDFs, which is beyond the scope of the Trustee Council's actions.

Biological: The plantings will increase the value of the CDFs by providing native vegetation to be used by local wildlife for shelter, cover or food.

Impacts on injured resources: There should be only beneficial impacts to the natural resources when compared to a CDF with minimal ground cover, which would provide little or no habitat value. Rather, the plantings will increase the habitat value by providing a more natural environment, which birds may utilize.

Impacts on other resources/habitats:

Vegetation: Only native plantings will be chose, as determined by a study of appropriate plantings for such a structure (cannot be deep-rooted because of impacts to the integrity of structure). The study will focus on the plants survivability and the extent of habitat value to benefit the impacted resources. There is no expected negative impact to existing vegetation.

Wildlife: It is expected that small mammals, birds and insects will benefit from the plantings by utilizing them for food, cover and shelter.

Fish and shellfish: There are no expected negative impacts to fish and shellfish resources.

Endangered species: There are no endangered species expected to be present at the site of the CDFs.

Physical: There would be no negative physical impacts beyond the actual construction of the CDFs. The plantings would be done on a man-made structure.

Human: Only positive benefits to humans are expected. The plantings would be designed to Anaturalize@the CDF thus providing greater aesthetics. The plantings are expected to attract various wildlife species thus increasing the aesthetic value.

**Preliminary Determination**: The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Council has decided to pursue only the habitat planting aspects of the proposal because, unlike the plantings, it may be within EPA's discretion to fund the access components of the proposal. The Council would like to first determine, through a study, the type of plantings that could be supported by these structures and whether they would further benefit the natural resources present in the harbor. Once this information is available, the Council would consider a funding level necessary to support the planting.

**Preliminary Funding**: \$25,000

#### **2.3.4.2.3 Winsegansett Field Station**

##### **Project Description**

Proposed Action : Establish an environmental education and coastal habitat restoration center on the Fairhaven-Acushnet Land Preservation Trust property acquired in Round I. The proposal includes a long-term lease on a house and the establishment of a permanent endowment fund to sustain education programs in perpetuity. The idea also proposes to undertake coastal habitat restoration projects on the property and to incorporate these projects in its education program.

Location : Sconticut Neck, Fairhaven

Time Frame: Short-term, unaffected by cleanup.

Affected Resources Addressed: Salt marsh, uplands, dunes, beach, salt pond, freshwaters wetlands and the natural resources supported by habitat types, including plants, mammals, birds, fish, and shellfish, that have been affected by the contamination of the New Bedford Harbor Environment.

Nexus to PCB Injury: Salt marsh habitats, sediment quality and water column health was injured or lost through PCB contamination, and this proposal will assist the restoration of these injured resources.

Benefits to Resource: Onsite coastal resource and habitat restoration and enhancement activities resulting in an overall increase in habitat protection and enhancement.

Benefits to Community: Education programs and restoration activities will be undertaken with community involvement in restoration of natural resources being the primary objective. The property is available for passive public recreation through the use of trails which will have self-guided displays.

## **Technical Feasibility**

Achievability: With sufficient funds the proposed activity is achievable. The types of projects envisioned for the site can be easily accomplished and the educational aspects can be made available for future use. These projects are not dependent on the long-term lease or endowment aspects of the proposal.

Reliability of Techniques: Standard habitat restoration techniques are expected to be used and taught on the property.

Impact of remediation: The site is outside the area of cleanup activities.

Monitoring: An important component of the project should be the periodic monitoring of the habitat restoration projects and incorporation of that monitoring into the educational programs offered on the site.

Estimated Cost: \$1,556,700

Estimated Match: none

## **Impacts on the Environment**

Biological: The only biological impacts should be beneficial impacts as discrete habitat restoration projects are planned and implemented resulting in an increased habitat value to the site.

Impacts on Injured resources: This project would take place within the New Bedford Harbor Environment and would preserve habitat for fish, shellfish, and bird species injured by the releases of contaminants. No adverse effect on the injured resources is expected.

Impacts on other resources/habitats:

Vegetation: Continued maintenance of this property as a natural environment would provide benefits to the native vegetation. Sensitive vegetation could be protected through the addition of low, unobtrusive fences and warning signage.

Wildlife: Expected human recreational use will have minimal impacts on wildlife species present.

Fish and shellfish: The project would preserve and enhance fish and shellfish habitat present on and adjacent to the site. No further negative impacts should result from this action.

Endangered Species: The NHESP has determined that endangered species may be present in the project action area. The site has received a Significant habitat designation by the Commonwealth which requires additional review of proposed actions to modify the habitat should the property be sold for residential development, but would not necessarily prevent modifications. By maintaining or enhancing the land, threatened or rare wildlife species will continue to use the area. As the area is monitored, further actions can be implemented to protect species of concern.

Physical: Any physical impacts would be minimal and beneficial in nature as the habitat restoration projects are implemented. Each project would have to be evaluated to determine the impact to the environment.

Human: Beneficial impacts will occur through increased access to the property and the improved quality of those visits which utilize the education programs of the field station.

**Preliminary Determination:** The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Council preliminarily supports the following aspects of the idea: a) habitat restoration and b) environmental education projects targeting specific human activities. In particular, the Council believes at this time that there are discrete habitat restoration projects on the property that should be identified and implemented, including: restoring salt marsh degraded by insufficient flow (salt marshes were injured by PCBs); restoring water quality in Winsegansett Pond by investigating and correcting pollutant inputs (salt pond habitat assists natural resources injured by PCBs); and restoring living resources through eelgrass planting (eelgrass plantings assist in the restoration of

natural resources injured by PCBs). These restoration activities would provide replacement for similar lost or injured natural resources in the Harbor Environment.

The Council also believes that there are opportunities for education about restoration of PCB injured natural resources in the New Bedford Harbor Environment through educational activities at this site, including education designed to encourage additional restoration efforts. For example, there are eelgrass beds, salt marsh and a salt pond located on the site. As those areas are restored, or enhanced, it may be appropriate to provide specific training programs to educate schoolchildren, the public, and municipal officials regarding the functions of these resources, and the appropriate methodologies to restore and monitor similar resources in the New Bedford Harbor Environment.

The Council also evaluated the need for a full-time staff person to be funded from the New Bedford Harbor Trust Accounts. The Council chose instead only to recommend sufficient funds to allow contracting for the specific services needed. The Council also recommends some funding for the trail and public access improvements and protective/interpretative signage.

**Preliminary Funding:** \$360,000

### **2.3.4.3 Non-preferred alternatives**

#### **2.3.4.3.1 Park Motors Land Acquisition**

Proposed Action : Acquire four parcels of developed land totaling 1.3 acres to provide a location for the Fairhaven Harbor Master and Tourism offices, as well as storage for town boats, parking for visitors and the adjacent boat ramp. The property is now the location of an automobile dealership and may become available in the future.

Location : Between Main and Middle Streets, Fairhaven

Resource Injury: The proponent states that shoreline properties that could have provided boat access and parking adjacent to the water's edge are unavailable due to the PCB contamination.

Resource Benefits: There are no apparent natural resource benefits though acquisition of the parcel could increase public access to the harbor.

Environmental Impacts: Minimal environmental impacts would occur from the purchase of the property and conversion to offices, parking and storage. The property is currently the location of an auto dealership and conversion to these uses would not provide any additional impacts beyond what has already occurred.

Estimated Cost: \$1,000,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources. There is no apparent habitat value for the site which would warrant purchasing and preserving this site. It is unclear whether access to recreational boating was lost or diminished as a result of PCB contamination. (See section 2.3.2.2.1)

#### **2.3.4.3.2 Clarks Cove Regional Land Acquisition**

Proposed Action : Acquire land to provide opportunity for recreation, shellfish propagation and habitat restoration. The land would be purchased for the use of Ideas 2.3.5.2.3. (Regional Shellfish Grow Out System) and 2.3.2.3.4. (Youth Sailing Center).

Location : Western shore of Clarks Cove

Resource Injury: PCBs discharged into the New Bedford Harbor Environment have resulted in elevated levels of PCBs in a variety of fish and shellfish species with varying effects. Sewage and PCB contamination of shellfish have resulted in fishing closures. It is unclear whether recreational boating was injured.

Resource Benefits: If used for the purposes intended, the purchase could assist in rebuilding the regional shellfishery.

Environmental Impacts: Actual impacts would have to be determined once a specific site has been chosen and the actual use of the site determined. Land acquisition is not expected to cause any negative environmental impacts. Actions taken after acquisition may cause impacts.

Estimated Cost: Unknown

Estimated Match: Unknown

Rationale for Non-preference: The property in question does not appear to have any substantial habitat value, unlike other proposed land acquisitions. The link to other projects may be insufficient to justify the acquisition of the land if those projects are ultimately not chosen. It would be more appropriate to evaluate 2.3.5.2.3 and 2.3.2.3.4. and then determine the need for a land acquisition component for successful implementation of those projects.

### **2.3.5 Living resources**

Living resources are fish and wildlife resources that have been impacted by the PCB contamination. Sections 3.3.2 through 3.3.8 of the RP/EIS describe the living resources of the New Bedford Harbor Environment, while Section 3.5.3.1 of the RP/EIS describes the living resources that were injured.

#### **2.3.5.1 No-action Alternative: No Living Resources Restoration or Enhancement**

Under the no-action alternative, the NBHTC would not undertake specific actions to restore or enhance injured fish, shellfish, wildlife or other living resources within the New Bedford Harbor Environment. As noted above and in Chapter 3, this would result in an extended time period of natural recovery, since it is expected to be many years following the clean-up before PCB concentrations reach acceptable levels in the waters, wetlands, sediments and biota of the New Bedford Harbor Estuary. During this period the living resources of the Harbor would continue to be affected by the contamination. PCBs continue to disperse, and in some cases bioaccumulate or biomagnify, as they migrate throughout the food web. Cumulative or intergenerational impacts may result. Moreover, the recovery of species and populations from PCBs in the Harbor may be depressed or retarded by additional adverse impacts, such as other contaminants and habitat loss, particularly in the urbanized, highly degraded Inner Harbor and Upper Estuary.

#### **2.3.5.2. Preferred Alternatives**

The living resources that use or reside in the Inner Harbor and Upper Estuary have been directly exposed to high levels of PCBs and thus are the resources most severely affected by PCB contamination in New Bedford Harbor. As discussed in Chapter 3 of the RP/EIS, these species are consumed by other species--potentially including humans--within and outside the Harbor Environment. Contaminants are thereby transported throughout the ecosystem and beyond. The preferred alternative, therefore, focuses on improving the condition of the living resources that live, feed, breed in, or otherwise use the more severely affected areas of the Harbor Environment, in an effort to improve the health of these resources and thereby enhance and accelerate ecosystem recovery.

Potential approaches to living resource restoration in the New Bedford Harbor Environment include habitat restoration or enhancement; enhancement of spawning success through direct (e.g., stocking or transplanting) or indirect (e.g., spawning habitat restoration) means; or direct augmentation or transplantation of stocks to improve populations, resource survival, or opportunities for human use.

The preferred alternative--living resource restoration in New Bedford Harbor--would provide ecological benefits throughout the Harbor Environment in the form of increased species diversity and abundance. Broad economic benefits could also result, through increased commercial and recreational harvest of fish and shellfish. Near-term actions would focus on developing sustainable populations of harvestable resources in the Outer Harbor. As clean-up of the Inner Harbor and Upper Estuary proceeds, subsequent actions could place greater emphasis on direct restoration of living resources in these areas.

#### **2.3.5.2.1. New Bedford Aquarium - (Aquaculture)**

##### **Project Description**

Proposed Action: The New Bedford Aquarium proposal would construct a fish hatchery located at the Aquarium site. The facility would serve as a working exhibit of the aquarium and would provide training, research and education capabilities which should promote aquaculture within the region. The funding would support construction and operations of the facility for over 5 years with some funding for exhibit and education materials as described below. It would also provide a facility which promotes a collaborative approach between Federal, state, academic and private interests that would further research capabilities on aquaculture.

Location: New Bedford

Timeframe: The fish hatchery is to be a part of the Aquarium and may have to wait until construction of the Aquarium begins.

Affected resources addressed: Several finfish species were found to have mean PCB concentrations above the current 2 ppm FDA limit for edible seafood. These included American eel, cunner, summer flounder, winter flounder, windowpane flounder, scup, bluefish, tautog and striped bass. (Weaver, 1982; Kolek and Ceurvels, 1981)

##### **Rationale for Adoption**

Nexus to PCB Injury: The living resources that use or reside in the New Bedford Harbor Environment have been directly exposed to high levels of PCBs. Contaminants are transported throughout the ecosystem and beyond through the consumption of these natural resources by other living resources. This idea will: 1) replace injured fish; 2) support the food chain in an environmentally protective way; and/or 3) provide educational benefits relating to the restoration of natural resources through stock enhancement.



Benefits to Resource: The facility would raise species that have been injured by PCB contamination for three possible purposes: First, when remediation of the harbor has been completed, stocking of hatchery-raised fish could be one of the means of supplementing some fish species that were injured by PCBs (e.g., winter flounder, scup, tautog), if a methodology can be found which is protective of the wild stocks and assists in their survival. Second, hatchery-raised fish may provide other ecosystem services, such as supporting the food chain in an environmentally protective way. And finally, the public would be educated regarding the technology and benefits of stock enhancement.

Benefits to Community: The fish hatchery is envisioned to be a working exhibit of the aquarium and would be open for public viewing. It is not clear whether there would be a charge associated with visiting the facility.

### **Technical Feasibility**

Achievability: The raising of fish in such a facility is an achievable goal. Less certain is whether the release of such fish will significantly benefit the injured natural resources by providing a healthy stock or by providing an uncontaminated, healthy food source.

Reliability of Techniques: The facility would use standard techniques already in use at the Center for Marine Science and Technology.

Impact of Remediation: The facility would be located shoreside and would not be affected by the cleanup activity.

Monitoring: Monitoring of the operation and the fish stock being released is an essential component of such a facility. Changing conditions such as water temperature, salinity and pH, can lead to stress of the fish which in turn can lead to mortality or disease. A facility needs constant monitoring during operation. An additional component would be the monitoring of the release of fish into the marine environment to determine whether the program is providing the expected benefits to the injured marine resources.

Estimated Cost: \$2.5 million

Estimated Match: none specified

### **Impacts on the Environment**

Biological: Provided that disease free, native fish are released into the environment, there should be minimal adverse biological impacts.

Impacts on injured resources: The goal of the project is to benefit the injured natural resources by increasing the stock size and by providing clean food in the form of small fish. It is expected that this combination will provide a healthier population of fish within the Harbor Environment.

Impacts on other resources/habitats:

Vegetation: There should be no adverse impacts to vegetation dependant on where the actual facility is constructed.

Wildlife: There should be no adverse impacts to wildlife from the construction and operation of a fish hatchery.

Fish and shellfish: Provided that disease free, native fish are released into the environment, there should be minimal adverse impacts to fish and shellfish.

Endangered species: There are no endangered species present in the area that would be adversely impacted by the project.

Physical: Physical impacts would result through the construction of the facility and the alteration of the land on which the facility is placed. It is unknown at this time where the actual facility (or facilities) is located and an evaluation of impacts would have to be conducted in association with the construction.

Human: Minimal, short-term adverse impacts associated with the construction of the fish hatchery are to be expected. The impacts may be in the form of dust, noise and traffic disruptions. These impacts would be short-term and the resulting facility will benefit the human environment by providing employment and harvest opportunities after the fish are released in the wild.

**Preliminary Determination:** The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. The Trustees have earmarked up \$1,950,000 to accomplish the goals: a) design and implementation of a feasibility study to evaluate the potential for a hatchery facility to aid the Trustees=with their responsibility to restore, replace or acquire the equivalent of injured fish species by satisfying either or both of the first two objectives described above; b) design and construct an appropriate portion of the aquarium to house a hatchery facility to facilitate accomplishment of the three objectives described above under the heading **ABenefits to Resource@**. The Trustees believe that this funding amount is appropriate for a project that can provide this level of information and services for the Trustees= future use in restoring injured fishery resources in the harbor.

The Trustees will need to evaluate the outcome of the feasibility study against the current needs for restoration. Assuming that the feasibility study supports a hatchery

approach, the Trustees will then need to work with the Aquarium as the design of the facility moves forward. Hatchery facilities=planning must address the resource restoration needs, including a determination of what can feasibly be built into the aquarium to satisfy the three objectives, and whether or not the studies and construction could be completed and would provide information and services to the Trustees in a timely manner.

The Aquarium proposal specified that fish produced in such a facility may also be used for human consumption. Council funding will not be used for this purpose and the total requested has been reduced to reflect this restriction.

**Preliminary Funding:** \$1.95 million

#### **2.3.5.2.2. Regional Shellfish Grow Out Up Well System**

##### **Project Description**

Proposed Action : This idea would construct a shellfish grow out up-well system, which is a tank-based system using recirculated sea water. The project would involve locating an appropriate site for the facility, as well as the design, construction and startup of the facility. Once constructed, the facility would be used to raise shellfish to a size that, after placement in the wild, would have a high probability of surviving to spawning and harvest size. The system would allow shellfish seed to be purchased at a small size and then grown under controlled conditions to a size that would survive predation. Smaller seed is less expensive than larger seed, so this idea would allow more seed to be purchased. More areas will be seeded and there will be quicker returns for the effort.

Location : New Bedford Harbor Environment

Time Frame: If funded, the project could begin immediately by first locating and securing property and then constructing the upweller facility.

Affected Resources Addressed: Quahogs, bay scallops and softshell clams were all identified as species of concern for PCB contamination (ACOE, 1988b). All have shown some level of PCB contamination though the actual amounts vary by species. Fishing for all three species has been prohibited in the Inner Harbor and some other areas because of closures due to PCB and sewage contamination, resulting in a significant loss of income to the shellfish harvesters from the four communities.

##### **Rationale for Adoption**

Nexus to PCB Injury: PCBs discharged into the New Bedford Harbor Environment have resulted in elevated levels of PCBs in a variety of fish and shellfish species. PCBs have been shown to cause reproductive impacts in fish and shellfish. Softshell clams show some evidence of increased disease potential in the presence of PCB contamination (NBHTC, 1993a). Fishing closures due to sewage and PCB contamination have directly impacted the shellfish harvesters of the area. This project will acquire the equivalent of the injured species and return the clean, healthy product to the New Bedford Harbor Environment.

Benefits to Resource: The reintroduction of shellfish species to larger areas of the Harbor will increase the biodiversity of the Harbor. Increased numbers of shellfish will benefit other species in the food chain. Filter feeding by the shellfish species should result in positive water quality impacts.

Benefits to Community: The reestablishment of a sustained shellfish fishery will allow greater commercial employment and recreational opportunities for the four communities.

### **Technical Feasibility**

Achievability: This idea would continue the efforts of the shellfish restoration program initiated through funding from Round I. It is expected that several more years of restoration activities will be needed to provide the variety of age classes necessary to sustain the fishery. Achievability can be negatively affected by environmental conditions, species predation and human interference through illegal fishing. These impacts to the restoration program can be mitigated through monitoring and adjustment. Success can be measured through greater recreational fishing opportunities, avian feeding, a greater variety of species comprising the catch, catch rate increases, and increased license sales.

Reliability of Techniques: Several towns are using upwellers to hasten the growth of shellfish, with favorable results. This is a proven method that will allow growth of the shellfish beyond a size where the shellfish would be subject to heavy predation.

Impact of Remediation: Since the upweller depends on a clean source of supply water, it is expected to be located outside the area of cleanup activities.

Monitoring: Municipal shellfish officers monitor and enforce the shellfish restoration program, including enforcement of closed areas and water quality. The program includes surveys before, during and after relays, transplants or seeding to assess success.

Estimated Cost: \$500,000

Estimated Match: \$30,000 to \$60,000 annually

## **Impacts on the Environment**

Biological: Benefits to the biological environment will occur through increased biodiversity, biomass, and an increased food supply for other fish and wildlife species. Some water quality improvements should occur through the natural filtering action of the shellfish.

Impacts on injured resources: Only beneficial impacts are expected. The goal of the project is to grow shellfish to a size large enough to survive predation. This will increase the viability of the shellfish, providing a benefit.

Impacts on other resources/habitats:

Vegetation: No adverse impacts to vegetation are expected dependant on the actual location chosen.

Fish and shellfish: Fish and shellfish would be expected to benefit from the release of healthy shellfish in the harbor.

Endangered species: No designated endangered species are known to use the proposed upweller site area.

Physical: Minimal adverse impacts related to construction of the upweller system and related facilities are expected.

Human: There would be minimal adverse impacts to the human environment. The operation would not be conducted in a residential area so odors and noise from pumps would not be expected to irritate to abutting properties.

**Preliminary Determination:** The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. This was one of two ideas which proposed to restore the shellfishery by either producing seed or by increasing the growth of seed to a viable size. The Trustee Council believes these projects may benefit the shellfish fishery by providing a clean, viable shellfish seed that will be larger and thus more protected from predation. Since these ideas are similar, it is the Trustee Council's intention to develop a request for proposals and hold an open solicitation for the work to be performed. Although not included in the original proposal, based on the technical advisors' recommendation, the Trustees will require this project to include a component to scientifically document the extent of success of this stocking effort.

**Preliminary Funding:** \$500,000

### **2.3.5.2.3 Shellfish Hatchery/Nursery & Shellfish Seed Restocking Plan**

#### **Project Description**

Proposed Action : The idea would provide an expansion to an existing nursery and create a new shellfish hatchery to provide quahog and bay scallop seed. A percentage of the seed production would be contributed to the municipal restocking programs for a period of 10 years. The technical expertise gained during implementation of the project will be shared with area towns.

Location : Padanaram Avenue, New Bedford

Time Frame: If the idea was funded, implementation could begin soon after.

Affected Resources Addressed: Quahogs, bay scallops and softshell clams were all identified as species of concern for PCB contamination (ACOE, 1988b). All have shown some level of PCB contamination though the actual amounts vary by species. Fishing for all three species has been prohibited in the Inner Harbor and some other areas because of closures for PCB and sewage contamination, resulting in a significant loss of income to the shellfish harvesters from the four communities.

#### **Rationale for Adoption**

Nexus to PCB Injury: PCBs discharged into the New Bedford Harbor Environment have resulted in elevated levels of PCBs in a variety of fish and shellfish species. PCBs have been shown to cause reproductive impacts in fish and shellfish. Fishing closures due to sewage and PCB contamination have directly impacted the shellfish harvesters of the area. This project will acquire the equivalent of the injured species and return the clean, healthy product to the New Bedford Harbor Environment.

Benefits to Resource: The reintroduction of shellfish species to larger areas of the Harbor will increase the biodiversity of the Harbor. Increased numbers of shellfish will benefit other species in the food chain. Filter feeding by the shellfish species should result in positive water quality impacts.

Benefits to Community: The reestablishment of a sustained shellfish fishery will allow greater commercial employment and recreational opportunities for the four communities. A sustained fishery will provide alternative employment to harvesters impacted by offshore fishing restrictions. Successful implementation will allow the continued harvest of a previously unharvestable resource.

#### **Technical Feasibility**

Achievability: This idea would continue the efforts of the shellfish restoration program initiated with funding from Round I. It is expected that several more years of restoration activities will be needed to provide the variety of age classes necessary to sustain the fishery. Achievability can be negatively affected by environmental conditions, species predation and human interference through illegal fishing. These impacts to the restoration program can be mitigated through monitoring and adjustment. Success can be measured through greater recreational fishing opportunities, avian feeding, a greater variety of species comprising the catch, catch rate increases, and increased license sales.

Reliability of Techniques: There are several commercial shellfish nurseries in the general area. This method of producing seed has been proven reliable.

Impact of Remediation: The existing facility is located outside the area of cleanup activities.

Monitoring: Municipal shellfish officers monitor and enforce the shellfish restoration program, including enforcement of closed areas and water quality. The program includes surveys before, during and after relays, transplants or seeding to assess success.

Estimated Cost: \$500,000

Estimated Match: \$150,000

### **Impacts on the Environment**

Biological: Benefits to the biological environment will occur through increased biodiversity and an increased food supply for other fish and wildlife species. Some water quality improvements should occur through the natural filtering action of the shellfish.

Impacts on injured resources: Only beneficial impacts are expected. The goal of the project is to grow shellfish to a size large enough to survive predation. This will increase the viability of the shellfish provided a benefit.

Impacts on other resources/habitats:

Vegetation: No adverse impacts to vegetation are expected dependant on the design of the expansion and actual location chosen.

Fish and shellfish: Fish and shellfish would be expected to benefit from the release of healthy shellfish in the harbor.

Endangered species: No endangered species are expected to be present at the location of the upweller.

Physical: Minimal adverse impacts related to expansion of the facility are expected.

Human: There would be minimal adverse impacts to the human environment. The operation would not be conducted in a residential area so odors and noise from pumps would not be expected to irritate to abutting properties.

**Preliminary Determination**: The Trustee Council has preliminarily approved the idea for possible implementation after consideration of the public comments received. This was one of two ideas which proposed to restore the shellfishery by either producing seed or by increasing the growth of seed to a viable size. The Trustee Council believes these projects may benefit the shellfish fishery by providing a clean, viable shellfish seed that will be larger and thus more protected from predation. Since these projects are similar, it is the Trustee Council's intention to develop a request for proposals and hold an open solicitation for the work to be performed.

**Preliminary Funding**: \$500,000

### **2.3.5.3 Non-preferred Alternatives**

#### **2.3.5.3.1. Striped Bass Project**

Proposed Action : Striped bass would be cultured in an upland facility and then made available for direct harvest and consumption, research and handicap-accessible education, breeding and hybridization, and stocking of a proposed mariculture farm in Buzzards Bay. Striped bass produced by this project could also be released into the wild for stock enhancement or for research and educational programs.

Location: Fairhaven and Buzzards Bay

Resource Injury: Striped bass were one of the marine species injured by the release of PCBs into the New Bedford Harbor Environment.

Resource Benefits: The applicant envisions the project to establish the foundation for a sustainable Striped bass aquaculture and mariculture industry.

Environmental Impacts: Some potential adverse impacts are possible but careful design could reduce or eliminate these impacts. Care must be taken with the effluent released from the facility which must meet NPDES standards. If mariculture were to be attempted, proper siting must be done to reduce potential takes to endangered species



such as sea turtles, and protected resources such as marine mammals. The pens must be secure and not drift and they must be monitored closely to make sure they are functioning properly. There must be adequate water circulation through the site to provide flushing of waste products.

Rationale for Non-preference: The Trustee Council does not believe there is any need for enhancement of striped bass through release. Some years ago the stock experienced low levels of abundance but active fishery management has brought the stock back so that it is now considered to be fully restored by the Atlantic States Marine Fisheries Commission. The Council determined that there does not appear to be a sufficient nexus between the proposed project and a need for restoration of an injured natural resources. The project does not provide an apparent benefit to any resource that has not already recovered from PCB contamination. The project's primary purpose appears to be the raising of fish to be sold to restaurants for consumption. In addition, it is unlikely that the project could provide educational benefits equal to those offered through the Aquarium's proposal given the anticipated public interest in the Aquarium complex and exhibits.

### **2.3.6 Endangered Species**

Endangered species are those recognized as requiring special attention because of their rarity. In the broadest sense, and as used in this EA, endangered species (also known as "listed species") include those designated as "endangered" by the federal government or the Commonwealth, as well as species that are recognized as rare or vulnerable but not in as imminent danger of extinction. These lesser designations include "threatened" status at the federal and Commonwealth level and "of special concern" at the Commonwealth level only. This EA gives special consideration to listed species in order to avoid adverse impacts on them and, of equal importance, to increase the survival and success of listed species in the New Bedford Harbor Environment.

In the New Bedford Harbor Environment, the listed species most affected by PCB contamination are common and roseate terns, which reside in Buzzards Bay from May through September, nesting on certain islands. Common terns are listed by the Commonwealth as "species of special concern" while roseates are listed by both the Commonwealth and the federal government as "endangered." Terns feed in the Harbor Estuary and, as described in Chapter 3 of the RP/EIS, ingested PCBs, with subsequent documented lethal and reproductive effects. Section 3.3.8 of the RP/EIS describes other listed species known to inhabit the Harbor Environment, but since PCB impacts have not been documented for any of these, the preferred alternative for near-term endangered species restoration in New Bedford Harbor pertains to common and roseate terns.

#### **2.3.6.1 No-action Alternative: No Endangered Species Restoration**

Pursuant to the no-action alternative, the Trustee Council would not restore endangered species in the New Bedford Harbor Environment. This approach would rely on environmental improvements resulting from remediation efforts to reduce the threat posed by the contamination to common and roseate terns. As PCB levels decline in the Harbor, so should impacts on the terns that feed there.

At best, this scenario could lead to some recovery of tern populations in Buzzards Bay. However, since the reduced tern populations are stressed by habitat loss and degradation, such recovery would take many years. Moreover, in the context of continuing loss of quality nesting habitat, it is possible that tern populations in Buzzards Bay would never recover from the effects of PCB contamination in New Bedford Harbor, and that roseate terns, in particular, would continue to decline.

#### **2.3.6.2 Preferred Alternative**

The preferred alternative is to continue to restore and enhance nesting habitat for the endangered species most severely affected by PCB contamination in New Bedford Harbor--common and roseate terns. To insure success, the process would continue, before tern populations decline further, and continue for a number of years, as the Harbor is cleaned up and an uncontaminated food supply once again becomes available. Monitoring would be undertaken to measure the success of the restoration and to ensure that PCBs remaining in the Harbor Environment do not undermine the effectiveness of the proposed action.

The preferred alternative is expected to substantially enhance the ability of tern populations to recover from the effects of PCB contamination in New Bedford Harbor. In addition to this ecological benefit, recovery of tern populations holds the potential for economic and aesthetic benefits as well, through bird watching and other passive uses of the Harbor Environment.

Of the restoration options identified as preferred alternatives by the NBHTC, this is the only one that would require significant action outside of the designated boundaries of the Harbor Environment, although the benefits will be felt in the Harbor Environment as the birds are likely to travel to this area to feed. Because terns are a mobile resource, they are clearly a resource of the Harbor. The terns were injured by PCBs in the Harbor Environment, and they are threatened by habitat loss as well. The Council has determined that the most effective way to restore this injured Harbor resource is through restoration of nesting habitat which, of necessity, would take place outside of the designated Harbor Environment, on the islands of Buzzards Bay.

#### **2.3.5.2.1. Restoration and Management of Tern Populations**

## **Project Description**

Proposed Action : The idea proposes to continue the tern restoration and stabilization efforts funded by the Trustee Council for an additional six years at three island nesting locations in Buzzards Bay. The project would strive to stabilize nesting populations at Bird Island, Marion and Ram Island, Mattapoisett, restore habitat at Bird Island, and continue management efforts to manage and restore terns at Penikese Island, Gosnold.

Location: Bird Island, Marion, MA; Ram Island, Mattapoisett, MA; and Penikese Island, Gosnold, MA. All three sites are in Buzzards Bay. Bird Island is owned by the Town of Marion; the latter two sites are owned by the Massachusetts Division of Fisheries & Wildlife (MDFW).

Timeframe: 6 years; 2001-2006; field seasons mainly April through August of each year, except for habitat restoration work, which would be accomplished outside this window.

Affected Resources Addressed: Common and roseate terns.

## **Rationale for Adoption**

Nexus to PCB Injury: Scientific evidence developed for the trial in this case indicated that terns were poisoned by PCB's as a result of feeding on fish within the New Bedford Harbor Environment. The Trustees argued in 1991 that terns were natural resources of New Bedford Harbor Environment and had been damaged by PCB's from New Bedford Harbor. Settlement of the litigation and funding for restoration was based in part on this evidence. This project will help restore the tern population.

Benefits to Resource: Populations of both common and roseate terns would be restored, increased and stabilized.

Benefits to Community: The community at large would benefit by tern restoration both aesthetically and economically. Restoration of terns as a functional part of the New Bedford Harbor Environment will contribute to the public's enjoyment of the Harbor Environment by increasing species richness and abundance. Recreational and commercial fishermen would benefit directly since terns are an important aid in locating schools of fish.

## **Technical Feasibility**

Achievability: The overall goal of this project is attainable. Portions of this project have been underway since 1990. Partial success has already been achieved, in particular successful partial restoration of the Ram Island colony and successful nesting of terns

at both Bird and Ram Islands. This proposal is for the continuation and extension of an already successful technique.

The speed with which the goal is ultimately achieved is likely to be dependent on the extent to which specific, enumerated underlying objectives are met and future actions completed. This will entail continued monitoring and management of sites already restored, restoration of a third colony site at Penikese Island and the restoration of badly eroded habitat using dredged spoil at both Bird and Ram Islands.

Reliability of Techniques: This project would employ proven techniques, with which the managing agencies have had experience, and does not involve untried or speculative ideas. Management programs to protect terneries and to enhance tern productivity have been in place in Massachusetts at different sites since the 1920's. Restoration of former terneries using proven gull control methodologies has been accomplished successfully at several sites in New England, including Ram Island, Mattapoissett. Toxicological testing of tern eggs and young to monitor post-remediation background levels of PCB's in the tern population would employ standard chemical testing methodologies. Dredging and deposition of spoil to rebuild eroded habitat would use well-known methods long employed in maintenance of navigational channels.

Impact of Remediation: Some of the most serious adverse effects on terns have likely begun to be mitigated with the cleanup of the Hot Spot. Some lower-level adverse effects on terns may likely continue until remediation is completed. However, remediation activities themselves would not be expected to have any material adverse effect on the activities envisioned in this project.

Monitoring: Monitoring of overall project progress would be accomplished by continuous oversight provided by the MDFW and the USFWS. Ultimate success in restoration of terns in the Buzzards Bay area and in the New Bedford Harbor Environment proper would be measured by biological monitoring systems, some of which are already in place, to track tern abundance, distribution and productivity in the entire area.

This project could also be expected to benefit from technical assistance provided by the Roseate Tern (Northeastern Population) Recovery Team.

Estimated Cost: \$1,232,000

Estimated Match: \$558,000

Cost Effectiveness: This project, as proposed, represents the minimum effort necessary to accomplish the goal of restoring and stabilizing terns in the NBH environment and the greater Buzzards Bay area within a reasonable time frame.

## Impacts on the Environment

Biological: Beneficial biological effects are anticipated for the tern species discussed above.

Impacts on injured resources: No effect on the injured resources would be anticipated except for terns, which should be beneficially affected.

Impacts on other resources/habitats:

This activity will require a Section 404 permit under the Clean Water Act. Applications for these permits require extensive documentation on the impacts of the action.

Vegetation: The physical rebuilding and stabilization of tern nesting areas at Bird and Ram Islands would involve the deposition and stabilization of clean dredge material and would be likely to have an impact on vegetation at these two sites. The exact extent of this impact cannot be determined at this time. The Commonwealth is in the process of hiring a consultant to do the design and securing the necessary permits for implementing this phase of the project.

Wildlife: Active management and monitoring of existing terneries may involve the occasional taking of predators. The initial restoration of the ternery on the ATubbs Island@portion of Penikese Island involved discouraging gull nesting on Tubbs Island. Techniques used to date for discouraging gull use has included auditory and visual harassment, the use of herding dogs, destruction of gull nests, trapping, and shooting of marauding predators. Following initial ternery restoration, predator control on Penikese Island would be on an occasional basis.

All of the above project activities are also likely to have positive effects on many wildlife species associated with the tern colonies, including willets, American oystercatchers, spotted sandpipers, killdeer, common eider and other bird species.

Fish & shellfish: No adverse impacts on fish would be expected to result from this project. The physical rebuilding and stabilization of Ram and Bird Islands involving dredging, deposition and stabilization of spoil could potentially have some negative impact on shellfish beds but would likely be small in area and would be offset by a substantial biological benefit to tern populations.

Physical: Physical impacts surrounding the dredging and placement of spoil can be expected. These impacts cannot be evaluated at this time since the project has not been designed and details are unavailable.

No negative impacts on cultural resources (archaeological or historical) or on land use patterns at the three ternery sites are foreseen. Bird Island Light, no longer in service,

is an historical resource of interest, but would not be effected by the project activities. Penikese Island contains assets of considerable historic interest which would not be affected.

Human. No negative effects are expected.

**Preliminary Determination**: The Council has preliminarily approved the idea for possible implementation after consideration of public comments received. The project will direct benefit an endangered species injured by PCB contamination.

**Preliminary Funding**: \$1,232,000

### **2.3.7 Studies, Plans or Educational Activities**

The Trustee Council received several ideas to conduct studies, plans or educational activities (studies). Studies may be undertaken by the Trustee Council to further advance the restoration planning process. Studies do not directly correct a specific natural resource injury and cannot be considered to be restoration *per se*. Rather, these studies would provide information to assist the Trustee Council in further identifying beneficial restoration opportunities. Any studies ultimately selected will be implemented at appropriate times throughout the restoration process.

#### **2.3.7.1 Preferred Studies, Plans or Educational Activities**

##### **2.3.7.1.1 New Bedford Aquarium - (Exhibit)**

Proposed Action: The exhibit would contain two components or goals. The first purpose of the exhibit would be to explain what PCBs are, what they were used for in industry and their relationship to the harbor; and then examine the effects of PCB contamination on the 6 major taxonomic groups of organisms (fish, crustaceans, mollusks, plankton, annelids and birds) located in the New Bedford Harbor Environment. The second, and perhaps more significant, purpose of the exhibit is to educate people to change their routine or everyday behavior to have a positive impact on the New Bedford Harbor Environment.

Location : New Bedford

Nexus to PCB Injury: The educational exhibit is anticipated to produce changes in daily human behavior that will benefit the resources injured by PCB contamination.

Benefits of the activity: The exhibit would be expected to educate the public on the harmful effects of hazardous discharges including those discharges resulting from daily human actions and efforts being made to clean up the harbor and restore its natural resources. With this education should come a greater understanding of the complexity of the harbor, and a commitment that further pollution should be prevented with the expectation that daily behavior will change to greater benefit the Harbor Environment.

Time Frame: The exhibit is to be a part of the Aquarium and would not be built until construction of the Aquarium begins.

Estimated Cost: \$150,000

Estimated Match: None

Preliminary Determination: The Council has preliminarily approved the idea for possible implementation after consideration of the public comments received.

Preliminary Funding: \$150,000

#### **2.3.7.1.2. Buzzards BayKeeper - On-the-Water for New Bedford Harbor Restoration**

Proposed Action : Establish a BayKeeper in New Bedford who would be responsible for investigating, documenting and reporting pollution or habitat degradation activities within the Bay's 30 major harbors and coves. The BayKeeper may also support education projects and wetland restoration activities associated with the harbor cleanup and restoration.

Location: New Bedford and Buzzards Bay

Nexus to PCB Injury: The BayKeeper monitoring proposal is anticipated to provide information to the Trustees which will assist the Trustees in developing and maintaining effective restoration projects for those natural resources that were injured by PCB contamination.

Benefits of the activity: The BayKeeper would be an on-the-water initiative to primarily monitor whether trustee funded projects are being properly implemented and to identify any activities that may adversely affect successful project implementation.

Time Frame: Short-term, unaffected by cleanup.

Estimated Cost: \$150,000

Estimated Match: \$346,000

**Preliminary Determination:** The Council has preliminarily approved the idea for possible implementation after consideration of public comments received. The Council believes that the BayKeeper can provide additional monitoring and assistance to both existing and future Council funded projects such as eelgrass, saltmarsh and tern restoration projects as well as providing overall monitoring of factors that may affect restoration projects and the health of the New Bedford Harbor Environment. The BayKeeper will assist the Council's efforts to restore natural resources by monitoring the Council-funded projects and by providing information to assist in the effective implementation and management of such current and future projects.

**Preliminary Funding:** \$150,000

### **2.3.7.2 Non-preferred Studies, Plans or Educational Activities**

#### **2.3.7.2.1 Bioremediation of PCBs by Microorganisms in Wetland Sediments**

**Proposed Action:** The idea would evaluate the PCB-degrading potential of microorganisms present in New Bedford Harbor wetland sediments by altering conditions. The study would identify conditions that can be altered to optimize the use of native microorganisms to bioremediate wetland sediments with PCB concentrations less than 50 ppm. The conditions to be investigated include PCB concentration, type of sediment, type of microorganisms present, temperature salinity, and primer compounds. Identification and assessment of the parameters controlling the naturally occurring bioremediation would provide the basis for developing a method to optimize bioremediation.

**Estimated Cost:** \$447,000 for three years

**Estimated Match:** none

**Rationale for Non-preference:** The Council preliminarily determined that if successful, the study may provide a beneficial result to the harbor resources. But the likelihood of success is unknown. Since this study is primarily related to remediation rather than restoration the Council suggests that there may be other more appropriate sources for funding.

#### **2.3.7.2.2 Planning for Nitrogen Removal from Fairhaven WWTP**

**Proposed Action:** Conduct a facilities planning and design study to explore options for providing nitrogen removal from wastewater effluent. The project will include an in-



depth loading analysis to establish an appropriate nitrogen level that is protective of estuarine water quality as well as engineering design to achieve such nitrogen levels.

Estimated Cost: \$100,000

Estimated Match: none

Rationale for Non-preference: The Fairhaven WWTP discharge is subject to permitting under the Clean Water Act's National Pollutant Discharge Elimination System (NPDES). Trustee Council policy does not permit funding of projects that are otherwise required. (See 64 FR 44507, August 16, 1999)

#### **2.3.7.2.3 Harbor Open Space Public Access Study Phase II/Implementation**

Proposed Action: This idea would expand upon the scope and area of the Harbor Open Space Study funded in Round I. That study resulted in a comprehensive design and implementation plan to address open space, recreation, and public access. The study would focus on eight sites in New Bedford and Fairhaven including Palmer's Island and Marsh Island. In addition, the idea would also conduct a detailed study and design for Palmer's Island.

Estimated Cost: \$400,000

Estimated Match: \$50,000

Rationale for Non-preference: The original idea contained many aspects including the study of Marsh Island for passive recreation and environmental use. The technical advisors favored the restoration of the salt marsh on Marsh Island. Of the eight sites proposed for study, the Marsh Island site appears to show the greatest potential for restoration and public access. After evaluating the expected outcomes from the study and the natural resource restoration benefits from direct restoration, the Council decided to pursue the direct restoration of the Marsh Island salt marsh rather than the study.

#### **2.3.7.2.4 Watershed Restoration Plan for the Acushnet River**

Proposed Action: A study to evaluate the Acushnet River ecosystem as a whole to develop schemes for discrete restoration projects. The study would inventory the existing physical and biological conditions present and consider cultural and economic factors as well as the subjective wishes of the community. Specifically the study would: 1) collect and review background information; 2) perform a geomorphic assessment; 3) perform a hydrologic assessment; and, 4) perform an aquatic habitat assessment. The

resulting products would be the Watershed Restoration Plan and presentation drawings.

Estimated Cost: \$180,000

Estimated Match: none

Rationale for Non-preference: While planning or study to support decisionmaking on specific projects or types of projects is still considered appropriate and is the approach taken for several of the projects in Round II, several of the tasks proposed were not necessary or had already been performed, while other tasks could be performed by technical staff.

#### **2.3.7.2.5 Pierce Mill Shoreline and Saltmarsh Restoration**

Proposed Action : This idea would prepare a site design for the proposed Riverside Park. The design is envisioned to include restoration of the shoreline by creating: natural slopes with hydric soils and salt marsh vegetation; natural landforms; open areas with native vegetation; paths with scenic overlooks and interpretive signage; and play areas for children to explore, climb and interact with a natural ecosystem.

Estimated Cost: \$250,000

Estimated Match: none

Rationale for Non-preference: While the Council believes that such a site design is a good idea, the Council also believes that the owner of the site (City of New Bedford) is the responsible entity to determine the various planning and design studies necessary to fulfill the ultimate design and uses for the site.

#### **2.3.7.2.6 New Bedford State Pier Buzzards Bay Education Center**

Proposed Action : Development of an educational facility for the Schooner Ernestina Commission and other educational uses appropriate to the site. A goal of the facility is to restore access to the Inner Harbor within the central waterfront area. The idea would create a task force for a) the planning process which would examine facility concepts and implementation strategies; and b) a design process to produce a facility design, operating and management plan, cost estimates, financing plan and construction schedule. Once developed, meetings would be conducted with business owners, fishing and maritime industrial groups, waterfront users, representative organizations and the general public to share the results of the planning/design and receive their comments.

Estimated Cost: \$225,000 (\$75,000 Planning/\$150,000 Design)

Estimated Match: Possible

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB injury to natural resources. It is unclear how the project would change behavior to benefit the harbor resources and whether there has been a loss of recreational boating in the Harbor due to PCB contamination. (See 2.3.2.2.1) Further, it is unclear how this project would increase access to the harbor. The Ernestina already is available and appears to have a full schedule.

### **2.3.8 Proposals Falling Outside the Scope of Restoration**

Proposals in this group are insufficiently related to natural resource restoration. These proposals either failed to address a resource injury or proposed an action that is more appropriately implemented by another entity such as EPA or a state agency.

The Trustee Council encourages the proponents of these ideas to pursue funding through other means.

#### **2.3.8.1 Renovate Roof - United Social Club**

Location : Front Street, New Bedford

Proposed Action : The proponent requested funds to replace a roof that has been damaged on a building in close proximity to the river. It is believed that the damage has been caused by salt water and by holes created by sea gulls dropping shells on the roof.

Resource Injury: The application does not appear to reference an injury to natural resources. The proponent references the damage to the roof caused by the close proximity of the harbor and the sea gulls that reside there.

Resource Benefits: The Council could not determine any sufficient benefits to natural resources through repair of the roof. The only benefits would be to the members and users of the social club.

Environmental Impacts: There would be minimal, if any, short term negative impacts resulting from stripping the existing roof and applying a new roof.

Estimated Cost: \$40,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources.

### **2.3.8.2 New Bedford Aquarium - (Natural Restoration - Eelgrass Beds)**

Proposed Action : The Aquarium/CMAST team would instrument eelgrass areas with video and sensors to televise the plant and animal life within the eelgrass habitats in the Aquarium as an exhibit. The information gathered would be the basis for an education unit on eelgrass. It is unclear from the proposal whether expansion of the existing beds is intended to be a part of this project.

Location: New Bedford Outer Harbor

Resource Injury: While eelgrass beds are not known to have been directly impacted by the PCB contamination, resources that use this habitat were injured.

Resource Benefits: The applicant believes that eelgrass education will result in a greater effort to restore eelgrass through watershed management and associated planting efforts.

Environmental Impacts: Minimal negative impacts to the eelgrass beds are expected provided that the video monitoring equipment is installed in a manner that is protective of the eelgrass beds and is secure, so as to prevent uprooting or scouring.

Estimated Cost: \$1,267,000

Estimated Match: None specified

Preliminary Determination: It is not apparent that this project will enhance the existing eelgrass habitat. Separate efforts are underway through use of harbor restoration funds to plant and expand the areas in which eelgrass is found within the Harbor Environment. It is unclear that recording activity will benefit the eelgrass. The Council believes that there are other, less costly alternatives available to monitor the success of planting efforts and the viability of the beds. In addition, it is not clear that the proposed televising of the eelgrass beds is an effective education tool if the goal is instructing the public regarding how and where to plant eelgrass to restore resources injured by PCB contamination in the Harbor Environment.

#### **2.3.8.4 New Bedford Aquarium - (Natural Restoration - Fish Runs)**

Proposed Action : This idea would provide access to and visualization of the alewife/herring fishways in the upper Acushnet River and a fish census at the Hurricane Barrier. A portion of the project would be enhancement of public access to the sites, providing information onsite, and an education unit with students working on fish census and studies of fish migration. The sensors at the Hurricane Barrier would be expected to gauge fish community improvements as restoration proceeds.

Location : Acushnet/New Bedford

Resource Injury: Several marine fish species were found to have PCB levels above the FDA limit for edible seafood. These species included American eel, summer, winter and windowpane flounder, scup, bluefish, tautog, striped bass and river herring.

Resource Benefits: The applicant believes that the display of, and education regarding proper approaches of fishways through the public access/visualization project will encourage restoration of fishways throughout Southeastern Massachusetts which in turn will benefit anadromous species.

Environmental Impacts: Minimal negative environmental impacts are expected provided that the instrumentation is installed and secured in a manner that is protective of the river bottom and the species that reside there.

Estimated Cost: \$810,000

Estimated Match: None specified

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources. It is not apparent that this project will enhance the injured marine fish resources. Separate efforts are underway to restore anadromous fish through the construction of fishways on the upper Acushnet River. Similarly, it is not clear that greater public access to fisheries in the Harbor Environment will result in the creation of more fish runs in the Harbor Environment.

#### **2.3.8.5 New Bedford Aquarium - (Natural Restoration - Terns)**

Proposed Action : During the period of bird activity (May through July) live data and video from Bird Island would be provided to support a tern exhibit at the Aquarium.

Location : Buzzards Bay/New Bedford

Resource Injury: Terns have been poisoned by PCB-s through feeding on PCB contaminated fish within the New Bedford Harbor Environment.

Resource Benefits: The proponent expects that the project will help support the restoration of tern populations by meeting public demand for viewing the terns while reducing visits to the site. Another expected benefit is through education to produce a knowledgeable citizenry

Environmental Impacts: Minimal negative impacts to the terneries are expected provided that the video monitoring equipment is installed and secured in a manner that is protective of the terns and their nests.

Estimated Cost: \$1,000,000

Estimated Match: none specified

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources. This idea provides no apparent direct benefit to the injured tern populations. Other, more appropriate means are available to accomplish these same results at a much reduced cost. For example, a video could be produced showing the nesting activity which could generate more information than a live video feed. Further, the terns are at the nesting island for only a 2-3 month period. The proposal does not specify what would be shown during the period (7-8 months) the terns are not on site.

#### **2.3.8.6 New Bedford Aquarium - (Natural Laboratory/Demonstration)**

Proposed Action : The idea focuses on using the harbor as a natural laboratory supporting exhibits, education and restoration. Sensor and visualization hardware would be deployed and would include habitat quality sensors, current monitors, weather station, CODAR Towers, moorings and supporting computers. The sensors would monitor environmental change and restoration progress.

Location : New Bedford

Resource Injury: This proposal does not address a specific PCB injury, but rather, provides a means for monitoring the success of restoration efforts on the ecosystem.

Resource Benefits: The proponent believes the idea will provide access to harbor systems and produce an informed citizenry. The monitoring will support adaptive management and provide equal access to the public.

Environmental Impacts: Minimal negative environmental impacts are expected provided that the instrumentation is installed and secured in a manner so that it does not break loose or drag across the bottom.

Estimated Cost: \$4.0 million

Estimated Match: None specified

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources. Given the variety of monitoring activities occurring in the harbor, the Trustee Council did not see the need for the additional monitoring afforded by this proposal. Each restoration project has a monitoring component and the overall success of the restoration depends on a variety of factors out of the control of the Trustee Council. The Trustee Council believes there are less expensive alternatives proposed or in place which accomplish similar results.

#### **2.3.8.7 Shipboard Fire Oil Spills**

Proposed Action : Purchase specialized equipment and training to be used in extinguishing vessel fires in and around New Bedford Harbor. The equipment would consist of high and low expansion foam generators, nozzles, foam concentrate and specialized equipment. Training would teach officers the tactics necessary to successfully battle shipboard fires.

Location : New Bedford Harbor

Resource Injury: The water column includes all fresh, salt and estuarine waters in the New Bedford Harbor Environment. PCBs are present in the water column where they can be a source of contamination to fish and wildlife species that use, live or swim in the water column.

Resource Benefits: A fast response to extinguish a shipboard fire will reduce the amount of petroleum products released into the Harbor, provide protection to the natural resources, and improve the water quality of the Harbor.

Environmental Impacts: The proposed idea would be expected to provide benefits to the natural resources by reducing the amount of contaminants released during a fire.

Estimated Cost: \$50,000

Estimated Match: none

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and PCB injury to natural resources. Rather, the goal of the project is to reduce environmental stress on the natural resources injured by the PCBs. While this could provide benefits to natural resources, a contingency plan developed by the United States Coast Guard under the Oil Pollution Act is already in place to respond to an oil release caused by a fire.

#### **2.3.8.8 Bird's Eye/Eye Spy Project**

Proposed Action : Purchase Internet accessible digital photographic equipment and related computer hardware/software to allow round the clock monitoring of various areas within the harbor environment. The purpose of the monitoring equipment would be to provide scenic enjoyment, document habitat quality improvements and provide pollution prevention monitoring.

Location : New Bedford/Fairhaven

Resource Injury: Unknown

Resource Benefits: Unknown

Environmental Impacts: There should be minimal negative environmental impacts from this project provided that the monitoring equipment is installed in an environmentally protective manner and the equipment is monitored and maintained. If implemented, the applicant should consider the use of existing structures and power supplies for mounting the equipment.

Estimated Cost: \$92,400

Estimated Match: no

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources.

Given the variety of monitoring activities occurring in the harbor, the Trustee Council did not see the need for the additional monitoring afforded by this proposal. Each restoration project has a monitoring component and the overall success of the restoration depends on a variety of factors out of the control of the Trustee Council. The Trustee Council believes there are less expensive alternatives proposed or in place which accomplish similar results.

#### **2.3.8.9 Coffin Avenue Causeway to Fairhaven**



Proposed Action : Construct a pedestrian/vehicle causeway crossing the Acushnet River from Coffin Avenue to Fairhaven to facilitate access between communities.

Location : New Bedford

Resource Injury: Unknown

Resource Benefits: Unknown

Environmental Impacts: Significant negative environmental impacts may occur from construction of a bridge at this location. Directly east of Coffin Avenue are substantial wetland areas where bridge footings would have to be located. Construction of such footings, the bridge and access ramps would permanently destroy those wetland areas leading to a permanent loss of natural resource habitat. A bridge at this location could also lead to further tidal restrictions in the harbor and shading from the bridge could impact marine resources and vegetation.

Estimated Cost: Unknown

Estimated Match: None specified.

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the PCB injury to natural resources. There are no apparent benefits to those natural resources.

#### **2.3.8.10 Removal or Destruction of the Wreck ARehoboth@**

Proposed Action : Remove a sunken vessel which poses a hazard to navigating the outer harbor. The removal will also allow the shellfish beds in the vicinity of the wreck to be available for harvest. The removal would reopen recreational and commercial uses.

Location: New Bedford (Outer Harbor)

Resource Injury: The proponent states that removal of the vessel will address the loss of the shellfish resource through the contamination by PCBs.

Resource Benefits: Removal of vessel may allow the reopening of shellfish beds at the site while leaving the vessel in place may provide the benefits associated with artificial reefs.

Environmental Impacts: Provided that all fuels and lubricants have been removed from the vessel, there should be minimal negative environmental impact if the vessel is

moved in a manner that is protective of the environment. The removal would increase boater safety in the area.

Estimated Cost: \$150,000

Estimated Match: None specified.

Rationale for Non-preference: The Council determined that there does not appear to be a sufficient nexus between the proposed project and the injury to natural resources.

Because the vessel serves on the one hand as an artificial reef, the benefits of removing the vessel are of questionable value to the natural resources. Accordingly, the costs of removing the vessel would likely exceed the value of any benefit gained for natural resources from the removal.

### **3. Listing of Agencies and Persons Consulted**

#### **Federal Agencies**

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
U.S. Department of the Interior  
U.S. Fish and Wildlife Service  
U.S. Department of Justice  
Environmental Protection Agency

#### **Commonwealth of Massachusetts**

Executive Office of Environmental Affairs  
Coastal Zone Management  
Department of Environmental Protection  
Department of Fisheries, Wildlife and Environmental Law Enforcement  
Division of Fisheries & Wildlife  
Natural Heritage and Endangered Species Program  
Division of Marine Fisheries

#### **Local and Regional Government Organizations**

City of New Bedford  
Town of Acushnet  
Town of Dartmouth  
Town of Fairhaven

#### **New Bedford Harbor Trustee Council**

##### **Trustees:**

Michael Bartlett	Field Supervisor, U.S. Fish and Wildlife Service, U.S. Department of the Interior
Bob Durand	Secretary, Massachusetts Executive Office of Environmental Affairs
Sally Yozell	Deputy Assistant Secretary for Oceans and Atmosphere, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

##### **Delegates:**

Dale Young	Natural Resource Damage Coordinator, Massachusetts Executive Office of Environmental Affairs
Jon Rittgers	Deputy Northeast Regional Administrator, National Marine Fisheries Service

#### **Support Staff**

Marcia Gittes	Legal Counsel, Department of the Interior
Tom LaRosa	Legal Counsel, Massachusetts Executive Office of Environmental Affairs
Marguerite Matera	Legal Counsel, National Oceanic and Atmospheric Administration
John Terrill	Coordinator, National Marine Fisheries Service

### **Technical Advisory Committee**

Bradford Blodget	Massachusetts Division of Fish and Wildlife
Ken Carr	U.S. Fish and Wildlife Service
John Catena	National Marine Fisheries Service, Restoration Center
Paul Craffey	Massachusetts Department of Environmental Protection
Paul Diodati	Massachusetts Division of Marine Fisheries
Karl Honkonen	Massachusetts Executive Office of Environmental Affairs
John Terrill (Chair)	National Marine Fisheries Service
Jim Turek	National Marine Fisheries Service, Restoration Center

### **Technical Advisors**

Jennifer Arnold	National Marine Fisheries Service, Restoration Center
Jed Brown	National Marine Fisheries Service, Restoration Center
James Burgess	National Marine Fisheries Service, Restoration Center
David Janik	Massachusetts Coastal Zone Management
Vincent Malkoski	Massachusetts Division of Marine Fisheries
David Whittaker	Massachusetts Division of Marine Fisheries

### **Public Consulted**

Trustee Council Meetings	September 4, 1998 New Bedford, MA November 20, 1998 New Bedford, MA May 7, 1999 New Bedford, MA October 26, 1999 Fairhaven, MA
Public Hearing	November 23, 1999 Fairhaven, MA (Summary attached)
Public Comments	Attached

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